THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephones*—GERRARD 4314 & 4315 *Offices*—423, Strand, London, W.C.

No. IX. OF VOL. I., 1927. LONDON, SATURDAY, FEBRUARY 26, 1927 Pp. 112—Price 1s.
No. 5400. Vol. CCXII. Founded 1823. Registered as a Newspaper. Published Weekly. Annual Subscription Inland £2 2s. Abroad £2 10s

OXFORD MEDICAL PUBLICATIONS.

SEE PAGE 5.

MODERN TECHNIQUE IN TREATMENT.
VOLS. I AND II.
Demy 8vo. Cloth. 384 pp. each. Price 10s. 6d. net per volume
The Lancet, 1, Bedford Street, London, W.C.2.

ON THE BREAST.
By DUNCAN C. L. FITZWILLIAMS, C.M.G., M.D., Ch.M., F.R.C.S. Ed. and Eng.
Royal 8vo. 456 pp. 9 Plates, 166 Illustrations. 30s. net.
LANCET.—"The book is packed with accurate clinical observations and bears evidence throughout of extensive clinical experience and wide reading on the part of the author."
Wm. Heinemann (Medical Books) Ltd., 20, Bedford-street, London, W.C.2.

THE HANDBOOK ON BIRTH CONTROL FOR MARRIED PEOPLE.

WISE PARENTHOOD
BY
MARIE C. STOPES, D.Sc., Ph.D.,
Author of "Married Love"; "Radiant Motherhood"; "Contraception," etc.
12TH EDITION, Revised and Enlarged, 3s. 6d. net. (Post. 3d.)

This book is specially suited for Doctors to recommend to enquiring patients. It is safe, practical, and scientific.

Descriptive circulars of this and Dr. Stopes's other books can be had on application.

Putnam, 24, Bedford-street, W.C.2.

LECTURES ON GONORRHŒA IN WOMEN AND CHILDREN
By J. JOHNSTON ABRAHAM, C.B.E., D.S.O., M.A., M.D. (Dub.), F.R.C.S. (Eng.).
Crown 8vo. Illustrated. 7s. 6d. net.
Practitioner:—"The possessor of this little manual, whether he be student, practitioner or specialist, will be repaid by its perusal."
Wm. Heinemann (Medical Books) Ltd., 20, Bedford-street, London, W.C.2.

DISEASES OF THE RECTUM AND COLON AND THEIR SURGICAL TREATMENT.
BY
P. LOCKHART-MUMMERY
F.R.C.S.ENG., M.A., M.B., B.C.CANTAB.,
Senior Surgeon to St. Mark's Hospital.
Over Two Hundred Plates and Illustrations. Price 25s.

Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

Third Edition. With many Illustrations. 12s. 9d. net.
TREATMENT OF DISEASES OF THE SKIN.
By KNOWSLEY SIBLEY, M.D.Camb.
London: Edward Arnold & Co., 41 and 43, Maddox-street, W. 1.

WORKS BY DR. HARRY CAMPBELL.

TREATMENT OF DISEASES OF THE NERVOUS SYSTEM (Functional and Organic). In Preparation.
FUNDAMENTAL PRINCIPLES OF TREATMENT.
MAN'S MENTAL EVOLUTION.

Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden, W.C.2.

NOW READY. SECOND EDITION. REVISED AND ENLARGED.
NEW EDITION — URINARY SURGERY.
By W. K. IRWIN, M.D., F.R.C.S.
Assistant Surgeon, St. Paul's Hospital for Genito-Urinary Diseases.
"Clearly written . . . . eminently practical . . . . we can thoroughly recommend it."—GLASGOW MEDICAL JOURNAL.
Crown 8vo. Pp. viii. + 271. Price 10s. 6d. Postage 6d.
Baillière, Tindall & Cox, 7 & 8, Henrietta Street, London, W.C.2.

MIND AND PERSONALITY.
AN ESSAY IN PSYCHOLOGY AND PHILOSOPHY.
By WILLIAM BROWN, M.D., D.Sc.,
Wilde Reader in Mental Philosophy in the University of Oxford; Psychotherapist to King's College Hospital, London.
"An important book."—THE SPECTATOR.
304 pp. Demy 8vo. 12s. 6d. net.
University of London Press, Ltd., 10 & 11, Warwick Lane, London, E.C.4.

¶ "It gives all a Medical Student is likely to be asked about Bacteriology."—BRITISH MED. JNAL.
HANDBOOK OF BACTERIOLOGY
By JOSEPH W. BIGGER, M.D.Dub., F.R.C.P.I., D.P.H., Professor of Bacteriology, University of Dublin, etc.
¶ "We have no hesitation in strongly recommending this book not only to those who are doing Bacteriology, but also to those who are qualified and are either in practice or acting as resident House Surgeons in general hospitals."—BELFAST UNIV. MED. GAZ.
". . . . accurate and adequate."—LANCET.
Demy 8vo. Pp. xvi. + 402. With 5 Coloured Plates and 66 other Illustrations. Price 12s. 6d., postage 6d.
Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

Second Edition, Revised and Enlarged. 12s. 6d. net.
HIGH BLOOD PRESSURE.
A MANUAL FOR PRACTITIONERS. Illustrated.
By J. F. HALLS DALLY, M.A., M.D., B.C. Cantab., M.R.C.P. Lond., Physician to Mount Vernon Hospital for Diseases of the Chest, etc.
W. Heinemann (Medical Books) Ltd., 20, Bedford-st., London, W.C.2.

By O. LEYTON, M.D., D.Sc., F.R.C.P.,
Physician to the London Hospital.
TREATMENT OF DIABETES MELLITUS
FOURTH EDITION.
NOW READY. Price 6s. net (Postage 3d.)
Adlard & Son, Limited, 21, Hart Street, London, W.C.1.

NOW READY. 1/6 net.
THE TREATMENT OF
CHRONIC DEAFNESS.
BY THE ELECTROPHONOÏDE METHOD OF ZUND-BURGUET.
By GEORGE C. CATHCART, M.A., M.D.,
Consulting Surgeon to the Throat Hospital, Golden-square.
Oxford University Press, Amen House, London, E.C.4.

FUNDAMENTALS OF THE ART OF SURGERY.
By JOHN H. WATSON, M.B., B.S. (Lond.), F.R.C.S. (Eng.).
Demy 8vo. Fully illustrated. 17s. 6d. net.
LANCET.—"A book which may be recommended to all who are about to assume to responsibilities of an active surgical career. . . . We find chapters upon the art of surgery, surgical efficiency, surgical judgment, case-taking and prognosis—chapters which are full of wisdom."
Wm. Heinemann (Medical Books), Ltd., 20, Bedford-street, London, W.C. 2.

By LESLIE THORNE THORNE, M.D., B.S., &c.
NAUHEIM TREATMENT OF DISEASES OF THE HEART AND VESSELS IN ENGLAND.
Sixth Ed. Enlarged and re-written, much new matter.
Pp. viii. + 232. With 27 Photographs of RESISTANCE-Exercises and 108 other Illustrations. Polygraphs, &c. Price 7s. 6d. net.
"It is the best and most practical work on the subject."
—WEST LONDON MEDICAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C.

Schering

If relievable why unrelieved?

The question applies to what may be termed the minor pains of every day practice. The answer is of course—fear of habituation and associated ill-effects.

With the introduction of Veramon this fear need be no longer entertained. Veramon will relieve the majority of pains incidental to general practice without producing any undesired effect.

It is especially indicated in headache, dysmenorrhœa, labour pains, &c.

Veramon
TRADE MARK

Samples and literature on application to

SCHERING LIMITED, 3, Lloyd's Avenue, LONDON, E.C.3

VALENTINE'S MEAT-JUICE

The **Power** of **Valentine's Meat-Juice** to be **Retained,** to **Aid Digestion,** and to **Sustain** and **Strengthen** when **Other Food Fails** has been **Demonstrated** by **Hospital Physicians** and **General Practitioners.**

Pneumonia and Influenza

William H. Peters, M. D., *Admitting Physician Camp for Consumptives, State of Rhode Island, Providence, R. I.:* "VALENTINE'S MEAT-JUICE was the only nourishment retained by my five-year-old daughter during an attack of Pneumonia. She is still taking it and gaining strength. I consider that it saved her life and believe it to be the best product of its kind on the market."

Cavalier Dr. Enrico Ballerini, *Late Surgeon to the Hospital of Rome, Italy:* "I have used VALENTINE'S MEAT-JUICE in the treatment of patients and also personally after having been very ill with Influenza, and I must say it is an excellent tonic in conditions of great organic weakness. It is also very agreeable. I have prescribed it with the greatest satisfaction for convalescents and invalids restricted to a liquid diet."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY
Richmond, Virginia, U. S. A.

A-12

THE LANCET

No. 5400. LONDON, SATURDAY, FEBRUARY 26, 1927. CCXII.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

LETTSOMIAN LECTURE

on the Surgery of the Spinal Cord and its Membranes. By DONALD ARMOUR, C.M.G., M.B., F.R.C.S., M.R.C.P. —(*Illustrated*) 423

ORIGINAL ARTICLES.

Cardiospasm. By JOHN MORLEY, Ch.M., F.R.C.S. —(*Illustrated*) 431

A Case of Severe Anæmia of Pregnancy Simulating Addison's Anæmia. By T. JENNER HOSKIN, M.D., M.R.C.P., and ENID CEIRIOG-CADLE, M.B., B.S.—(*Illustrated*) 433

Four Cases of Anthrax treated with Sclavo's Serum. By R. H. BOGGON, M.B., B.S.—(*Illustrated*). 435

CLINICAL AND LABORATORY NOTES.

A Case of Meckel's Diverticulum. By C. S. MCEUEN, M.D., C.M.— (*Illustrated*) 436

A Case of Lymphosarcoma of the Naso-pharynx treated with Radium and X Rays. By HECTOR A. COLWELL, M.B., M.R.C.P., D.P.H. 437

A Case of Rupture of an Enlarged Malarial Spleen. By JOHN MACQUEEN, M.B., B.Ch. 437

MEDICAL SOCIETIES.

Royal Society of Medicine: Section of Dermatology: Treatment of Ringworm by Thallium Epilation. 438
Section of Medicine: Migraine 461

Manchester Medical Society: Vertigo 438

North of England Obstetrical and Gynæcological Society 439

REVIEWS AND NOTICES OF BOOKS.

Die Akuten Eitrigen Infektionen in der Chirurgie und ihre Behandlung. By Dr. Arthur Buzello.. 441

Electrothermic Methods in the Treatment of Neoplastic Disease. By J. Douglas Morgan, M.D... 441

Selbstschilderungen der Verwjrrtheit. Die Oneiroide Erlebnisform. By Dr. W. Mayer-Gross 442

The Enlarged Prostate. By Kenneth M. Walker, F.R.C.S., M.A., M.B. .. 442

Die Tuberkulösen Erkrankungen des Auges. By Dr. R. Bergmeister.. 442

A Solution of the Septic Problem and a New Theory of Immunity. By D. Montgomerie Paton, L.R.C.P., L.R.C.S. 443

Samuel Hahnemann: His Life and Work. By Richard Haehl, M.D. .. 443

Geistige Entwicklung Hypothyroidischer Kinder bei Spezifischer Behandlung. By Dr. W. Kornfeld..... 443

The Black Death: A Chronicle of the Plague. Compiled by Johannes Nohl from Contemporary Sources 443

Dementia Rachitica. By Dr. Kurt Huldschinsky. 444

The Natural History of Ants. By René Antoine Ferchault de Réaumur.. 444

A Handbook for Senior Nurses and Midwives. By J. K. Watson, M.D. 444

NEW INVENTIONS.

A Lipiodol Trocar and Cannula (F. G. Chandler, M.D.—(*Illustrated*) 444

LEADING ARTICLES.

DISTEMPER AND INFLUENZA 445

TESTS FOR DRUNKENNESS 446

VORONOFF'S METHOD OF REJUVENATION 446

ANNOTATIONS.

The End of the Outbreak of Anthrax at the Zoo..... 447

Vertigo in Epidemic Encephalitis 448

Diaphragmatic Hernia.... 448

A Routine Treatment for Influenza 448

The History of Harley Street 449

Treatment of Ringworm in Young Children..... 449

Early American Surgery.. 450

Sale of Ultra-Violet Lamps 450

The Royal Society 451

Health Organisation of the League of Nations..... 451

THE SERVICES.

Royal Naval Medical Service.—Royal Army Medical Corps.—Indian Medical Service 451

MODERN TECHNIQUE IN TREATMENT.

CCXII.—Treatment of Poisoning. By E. BOSDIN LEECH, M.D., F.R.C.P. 452

SPECIAL ARTICLES.

Medical Research Council: Annual Report for 1925–26.—(*To be concluded*).. 453

Medicine and the Law: Seditious Conspiracies.—Professional Discipline: An Imperfect Parallel.. 455

Ireland: Charter Day Dinner of the Royal College of Surgeons..... 456

Paris: Substitute Flour in Bread..... 456

Royal Medico-Psychological Association 463

Infectious Disease in England and Wales 472

CORRESPONDENCE.

Post-Graduate Tour for Surgeons (Mr. V. Warren Low) 457

Acute Poliomyelitis (Dr. J. T. C. Nash)..... 457

Ophthalmic Benefit (Dr. Adrian Caddy)..... 458

Post-Operative Facial Paralysis (Mr. E. Watson-Williams) 459

The Blood-Groups of Identical Twins (Mr. Geoffrey Keynes) 459

"Sonne" Dysentery in Great Britain (Dr. David Nabarro)..... 460

The Case of Colonel Kynaston (Lt.-Col. John Kynaston) 460

OBITUARY.

Sir John Utting, M.R.C.S., L.R.C.P..... 460

John Fletcher Porter, C.B.E., M.B., J.P..... 460

George Arthur Phillips, M.R.C.S., J.P. 461

William James Caie, M.B., Ch.B., J.P..... 461

MEDICAL NEWS.

Liverpool Students' Collection for Hospitals..... 436

Progress of Glasgow Hospitals 436

Leeds Pensions Hospital .. 451

Rebuilding of Doncaster Infirmary 461

Hospitals and Accidents.. 463

Sir Wm. Dunn School of Pathology, Oxford 464

London School of Hygiene and Tropical Medicine.. 464

University of London: University College..... 464

Royal Sanitary Institute.. 464

Cambridge Graduates' Medical Club 464

James Mackenzie Institute for Clinical Research .. 464

Fellowship of Medicine and Post-Graduate Med. Assoc. 464

Medical Society of London 464

London Street Accidents.. 464

School for Defective Children in Huddersfield .. 464

London Natural History Society 464

Pathogenesis and Treatment of Sciatica 464

New Convalescent Home for Miners..... 464

Post-Graduate Facilities in Manchester..... 464

Seamen's Hospital Society 464

St. Mark's Hospital 469

Queen Alexandra Memorial 469

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: Sale of Food and Drugs Bill.—Poor-law Emergency (Scotland) Bill.... 465

House of Commons: Tuberculosis in the Navy and Army.—Pensioners with Valvular Heart Disease.—Alcohol and Miners' Nystagmus.—Completion of School Medical Service.—Open-air Schools for Invalid Children.—Minister of Health and Medical Officer's Salary.—Insulin and Diabetes.—Medical Examination of Assisted Emigrants.—Cleanliness of Imported Dairy Produce.—New Accommodation for London University.—Ministry of Health Vote 465

NOTES, COMMENTS, AND ABSTRACTS.

The Influence of John Hunter upon Early American Surgery. By Prof. JOHN M. T. FINNEY, M.D.—(*concluded*) 69

The Blind in Scotland.... 472

A Professor's Fairy Tales.. 472

Special Lectures at Medical Schools 472

Medical Diary 467

Appointments.—Vacancies 468

Births, Marriages, Deaths 469

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY LIMITED.

(FOUNDED 1892.)

Registered Office: VICTORY HOUSE, LEICESTER SQUARE, W.C 2.

Telegrams: "MEDICAVERO, WESTRAND, LONDON." *Telephone:* REGENT 0611.

President: Sir JOHN ROSE BRADFORD, K.C.M.G., C.B., C.B.E., M.D., P.R.C.P., F.R.S.
Treasurer and Chairman of Council: C. M. FEGEN, M.R.C.S., L.R.C.P., D.P.H.
Trustees for the Reserve Fund:
Rt. Hon. LORD DAWSON, G.C.V.O., K.C.B., M.D., F.R.C.P. Sir ANTHONY A. BOWLBY, Bart., K.C.B., K.C.M.G., K.C.V.O., F.R.C.S. Sir HARRY BALDWIN, C.V.O., M.R.C.S., L.D.S.

The Society was founded for the following purposes: To protect, support and safeguard the character and interests of legally qualified Medical and Dental Practitioners; to advise and assist Members of the Society in matters affecting their professional character and interests; and to indemnify them in regard to actions, etc., undertaken on their behalf.

SUBSCRIPTIONS. There is an Entrance Fee of 10s., and an Annual Subscription of £1.

The Invested Funds of the Society exceed £38,100. The Society is fully insured to an unlimited extent against all adverse costs and damages which may be awarded against Members in any action which the Society undertakes on their behalf.

Forms of application for Membership and full particulars may be obtained from the Secretaries at the above address.

From EDWARD ARNOLD & Co.'s LIST

viii+424 pages. 4 Plates. **21s.** net.

CLINICAL PHYSIOLOGY

In Relation to Modern Diagnosis and Treatment

By **R. J. S. McDOWALL,** D.Sc., M.B., F.R.C.P.Ed.,
Professor of Physiology, King's College, University of London.

"The most serviceable presentation of current physiological knowledge and theory in relation to the practical art of medicine which has yet appeared."—*Times.*

New Editions of Books by **ROBERT HUTCHISON,** M.D., F.R.C.P., Physician to the London Hospital.

FOOD and the Principles of Dietetics
NEW SIXTH EDITION. Illustrated. 610 pages. **21s.** net.

LECTURES ON DYSPEPSIA.
NEW SECOND EDITION. Revised and Enlarged. 193 pages. **6s.** net.

By **RUSSELL HOWARD,** C.B.E., M.S.Lond., F.R.C.S.Eng., Surgeon, London Hospital, &c.

THE PRACTICE OF SURGERY
By RUSSELL HOWARD. Third Edition, Revised. With 8 Coloured Plates and 523 Illustrations. 1280 pages. **30s.** net.

THE HOUSE-SURGEON'S VADE-MECUM.
By RUSSELL HOWARD and ALAN C. PERRY, M.B., M.S., F.R.C.S. NEW (SECOND) EDITION, Completely Revised. **12s. 6d.** net.

LIGHT TREATMENT IN SURGERY
By Dr. O. BERNHARD (of St. Moritz). Translated by R. KING BROWN, M.D., Lecturer in Public Health, Guy's Hospital Medical School. **21s.** net.

SUNSHINE AND OPEN AIR
By LEONARD HILL, M.B., F.R.S., Director of Department of Applied Physiology, National Institute of Medical Research. SECOND EDITION revised. 140 pages. Illustrated. **10s. 6d.** net.

viii+373 pages. Fully Illustrated. **21s.** net.

DENTAL PROSTHETIC MECHANICS

By **D. M. SHAW,** Curator of the Prosthetic Laboratories, Royal Dental Hospital, London.

London: EDWARD ARNOLD & Co., 41 & 43 Maddox Street, W.1.

Latest English Edition. Lavishly Illustrated. With 1,086 Illustrations in the Text, and 20 full-page Plates. Super Royal 8vo. 824 pp. Cloth gilt. **63s.** *net; postage 1s.*

URGENT SURGERY

By FELIX LEJARS.

Translated from the Eighth French Edition by W. S. DICKIE, O.B.E., F.R.C.S., and ERNEST WARD, M.A., M.D., F.R.C.S.

"The excellence of the text, clearness of description, fullness of suggestions for treatment, and the abundance of illustrations, should ensure the success of the book in this country."—THE LANCET.

"Will prove of the greatest possible help to any medical man not specially versed in surgery who is called upon to perform a major operation, and even specialist surgeons will derive many useful hints from its perusal."
—BRITISH JOURNAL OF SURGERY.

RECENTLY PUBLISHED. Demy 8vo. 424 pages. **20s.** *net; postage 9d.*

THE INFLAMMATORY AND TOXIC

DISEASES OF BONE

A TEXT-BOOK FOR SENIOR STUDENTS.

By R. LAWFORD KNAGGS, M.C. (CANTAB.), F.R.C.S.
Consulting Surgeon to Leeds General Infirmary, formerly Professor of Surgery in the University of Leeds.

With 197 Illustrations (some in colour), and including numerous Photomicrographs

By G. H. RODMAN, M.D., Hon. F.R.P.S.

"A book which will undoubtedly, owing to its completeness, take its place as a work of reference, whilst at the same time it will be read with enjoyment by all interested in bone diseases."—THE LANCET.

London: SIMPKIN & CO. Ltd. *(NEW ILLUSTRATED CATALOGUE FREE.)* **Bristol: JOHN WRIGHT & SONS Ltd.**

STAMMERING, SPEECH DEFECTS

BEHNKE METHOD. Estab. 1882. CASES, non-resident, treated at 39, Earl's Court Square, S.W. 5, and, in residence, in the Summer holidays at Miss Behnke's house on the Chilterns.
"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*
"Thoroughly physiological principles."—*The Lancet.*
"The method is scientifically correct and perfectly effective."
Guy's Hospital Gazette.

"STAMMERING, CLEFT PALATE, SPEECH LISPING." **3s. 9d.**
of Miss BEHNKE, 39, Earl's Court Square, S.W. 5.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.6
(Telephone: Willesden 0435.)

30 years colleague of late B. BESLEY, Brampton Park, Huntingdon.
Those interested in the subject should write for his book, which will be sent post free.

Price 1s. With Illustrations.

APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."
London: Matthews Brothers, 10, New Oxford-street, W.C.

Tycos

Stocked by reputable Dealers everywhere.

ARTERIAL PRESSURES are quickly gauged with this instrument, whose unique diaphragm action ensures constant accuracy and infinite utility.
Invaluable in Surgery.

SPHYGMOMANOMETER

Full particulars from the makers:
SHORT & MASON, LTD.,
Aneroid Works, Walthamstow, London, E.17
London Showrooms: ATLANTIC HOUSE, 45-50, HOLBORN VIADUCT, E.C.1.

Lettsomian Lecture

ON THE

SURGERY OF THE SPINAL CORD AND ITS MEMBRANES.

Being the First Lettsomian Lecture in 1926, delivered before the Medical Society of London on Feb. 21st, 1927,

BY DONALD ARMOUR, C.M.G., M.B. TORONTO, F.R.C.S. ENG., M.R.C.P. LOND.,

SENIOR SURGEON TO THE WEST LONDON HOSPITAL AND SURGEON TO THE NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM.

IT is somewhat to be wondered at that this subject has not been dealt with before in these lectures, for it is one around which controversy has raged from time to time with some bitterness—controversy finally laid to rest, at any rate as far as concerns the subject in its broadest aspects, by the introduction of Listerian surgery and by the great progress made in recent years in neurological diagnosis and localisation.

HISTORY.

It is true that the discussions for and against operation were limited at first to cases of injury of the spine, but there can be little doubt that operation was advocated, and almost certainly practised, from the earliest times. Hippocrates, writing in his "Treatise on Articulations," advises that when bloodless methods have failed to reduce a fracture—dislocation of the spine, the body should be opened and the vertebra replaced from before backwards by the hand in the abdomen. He adds naïvely, however, "that this is only possible in the dead, and not on the living." The successors of Hippocrates, on the contrary, advised that surgical intervention should be directed to the vertebral arches, which were considered to be the cause of the medullary compression.

In the seventh century Paulus Aegineta urged that, when there is compression of the spinal cord, an incision should be carried down to the bone and an attempt made to raise the compressing fragment. This, he adds, should be done only after warning the patient of the danger of the operation.

In 1526 Fabricius Hildanus proposed that when extension and coaptation were unsuccessful, the following operation should be performed. An incision is made down to the spinous processes of the vertebræ and prolonged upon their right and left sides, to expose the laminæ. (An exact description, it will be noticed, of the modern operative approach.) Then the fragments are to be seized with forceps and the luxation reduced, while simultaneous extension is made upon the spine to aid the reduction. He advises operation as soon as possible after the accident.

In 1545 Ambroise Paré urged surgeons to greater boldness and advised the removal, where possible, of the splinters or pieces of bone which had been driven in and were compressing the cord and nerves. Vigier in 1559, Heister in 1739, and James in 1745 all advised the same procedure. Heister says: "But to offer the patient no assistance because we despair would seem cruel and uncharitable, therefore we must try our skill though our efforts should be in vain; in order to which the surgeon must lay bare the fractured vertebræ with a scalpel and replace or else remove such fragments as injured the spinal marrow."

Louis in 1762 performed what was the nearest approach to a formal resection of the spine upon M. de Villedon, Captain in the Regiment of Vaubecourt, who was paralysed fron a gunshot wound of the back, received at the battle of Aménébourg. Fragments of bone were removed and the patient finally recovered sufficiently to be able to walk. Louis also speaks of "the indication for the trephine, even without fracture, to give exit to blood or matter, or even to prevent suppuration in some cases of fracture." He made a sketch of the operation suggested. Chopart and Desault (1771) speak of it as a very simple thing to trephine between the spinous and transverse processes to give issue to effused fluids, or to elevate or remove pieces of bone which may wound the cord. They were supported in this by Benjamin Bell 1796.

The Beginning of Modern Surgical Practice.

But these counsels remained for the most part purely theoretical until 1814, just a year before the death of the founder of this Society, when the younger Cline performed the first formal operation for the removal of a depressed vertebral arch. In the clinical lecture which he delivered afterwards to explain the reasons which had induced him to perform this operation, and the grounds upon which he hoped for success, he said that he considered that in fracture with displacement of the vertebræ, which compressed the spinal cord, the cord was under precisely the same circumstances as the brain with a depressed fracture of the skull, and that the indications were the same in both cases—i.e., removal of the compression. He considered that the only reasonable objection to the operation was the inability to decide before operation whether the cord was simply compressed, either by bone or effused blood, or partially or completely severed.

Cline's operation, although the patient died, attracted widespread attention and gave rise to vehement discussion as to its justification. This discussion, often degenerating into bitter and virulent personalities, went on for many years. Astley Cooper, Benjamin Bell, Tyrrell, South, and others upholding the operation, while Charles Bell, John Bell, Benjamin Brodie, and others violently opposed it. Brodie thought that under the most auspicious circumstances more harm than good would result from the operation. But Astley Cooper urged that it might occasionally be successful and alluded to the opponents to the operation as "blockheads." To this Charles Bell retorted:—

> "We must submit to hear many strange proposals for the improvement of our profession in the present day from young men ambitious of notice, but that a man of Sir Astley's years and station should talk as he has done before students, and give them his authority for laying a patient upon his belly, and by incisions laying bare the bones of the spine, breaking up these bones, and exposing the spinal marrow itself, exceeds all belief."

And this, coming from the leading neurologist of the day, doubtless had a great influence in retarding the development of spinal surgery.

Failures and Successes.

For some years only an occasional operation, almost invariably unsuccessful, was reported from time to time, though one by a Welsh surgeon named Edwards was reported in 1838 as being successful. But the details are meagre. So unsuccessful were the results of the operation that Malgaigne, in his "Treatise on Fractures and Luxations" (1847) joined the ranks of its opponents and threw the weight of his authority against the operation; though Bodez in his thesis (Paris, 1861) thought that in desperate cases a life might be saved by such means.

In 1865 considerable interest in the subject was revived by Robert McDonnell, who reported a successful case of Dr. Samuel Gordon of Whitworth Hospital, Dublin, a fatal case of his own, and reviewed 26 cases of trephining of the spine, in seven of which a favourable result was obtained. In 1866 Jonathan Hutchinson opposed the operation in a lengthy article, in which he denied that the cord was ever permanently compressed by the bodies, by the laminæ, or by extravasated blood, but urged as his chief reason against the operation that "you convert a simple into a compound fracture, and add the risks of pyæmia, together with those of spinal meningitis."

In 1869 Thomas Nunnely, in an address before the British Medical Association, again brought the subject before the profession. His general conclusion

was favourable to the operation. This, in the same year, was refuted by Le Gros Clark, who "with every disposition to regard the subject impartially," could not regard "trephining the spine as brought within the pale of the justifiable operations in surgery."

It was at this date that a complete change of opinion appeared for the first time in that great English classic, Erichsen's "Art and Science of Surgery." In the first edition, published in 1853, appeared :—

"This operation (trephining the spine), though performed by Cline, Cooper, and Bell is, I believe, now generally abandoned by the best surgeons in this country, owing to its invariable, and, indeed, intrinsically fatal character."

And so through the next three editions. But in the fifth edition, published in 1869, Erichsen comes out as a supporter of the operation in the following words :—

"The results of this operation are not very encouraging. But, though so far the result has been but little satisfactory, ought surgeons to discard the operation? I think not; and we are the more justified in this course, as the operation is not necessarily dangerous to life, does not appear often to have hastened the patient's death, and has certainly, in some cases, afforded relief of the most marked character."

In 1870 Brown-Séquard, from the point of view of a neurologist and experimental physiologist, expressed the following conclusions :—

1. That the laying bare of the spinal cord is not a dangerous operation. 2. That death, after a fracture of the spine, is usually due to the effects of pressure, or of excitation of the spinal cord, and is not the result of a partial or a complete section of this organ. 3. That reunion may take place after a wound of the spinal cord, so that its lost functions may return. 4. That the removal of some parts of the vertebræ may be followed by a production of new bone. 5. That the cases of fracture of the spine in which the trephine has been applied show the usefulness of this operation.

In spite of this authoritative pronouncement, progress was slow and only isolated cases, mostly fatal, were reported by Cheever (1870), by Willard (1871), by Lücke (1880), by Stemen (1883), by Halsted (1884), and by Pinkerton (1884). The operation was variously described under such extravagant terms as "formidable," "appalling," "well-nigh impossible," "desperate and blind," "unjustifiable," "bloody and dangerous." How great the prejudice against this operation must have been, even in fairly recent times, may be judged by the article in Heath's "Dictionary of Surgery" written by none other than Herbert Page in 1881.

"The operation of trephining the spine, proposed many years ago and adopted several times, has made no progress in surgery, nor is it likely to do so. . . . It is an operation not within the range of practical surgery."

Continued Progress.

Notwithstanding such uncompromising condemnation in this country, progress elsewhere continued. Maydle, of Vienna, in 1882, and Morris, of New York, in 1885 made unsuccessful attempts to unite the severed ends of the spinal cord, while Abbe, in 1889, acting upon Dana's suggestion tried to unite the nerve roots above and below the level of the injury to the cord, hoping thus "to furnish a means of communication between the severed sections." The attempt proved too difficult of accomplishment and had to be abandoned. John Duncan, in Edinburgh in 1889, tried to obtain union of the severed cord by simply drawing the ends of the torn dura together and stitching them there, in order to relax tension on the cord. But no improvement followed.

In February, 1885, William Macewen, operated upon a man, who had a complete paraplegia with bed-sores, resulting from an injury to his lower dorsal spine eight weeks previously. The arch of the twelfth dorsal vertebra was found fractured and depressed. It was removed together with "a connective tissue tumour" lying between it and the theca. A year later the patient could walk with ease and without support.

While Werner was able to find only six cases that had survived the operation out of 31 operations of trephining the spine, it must be remembered that all belong to the pre-Listerian era of surgery. Immediately following upon the introduction of antiseptics, greatly improved results were forthcoming, and of 13 operations for fracture of Macewen, Morris, Horsley, Lauenstein, Lücke, Albert, Duncan, Pean, and Allingham, there were three complete recoveries, two recoveries with benefit, seven recoveries unimproved, and one death.

Pott's Disease.

It followed naturally that attention should begin now to be directed to cases of paraplegia due to Pott's disease. Hippocrates had already observed that the palsy of the legs and arms, the wasting of the body, and the retention of urine happen chiefly in those cases where there is no spinal deformity, nor any projecting bone forward or backward; and paralytic affections take place the least frequently in cases of gibbous or angular projections. And Percival Pott, writing in 1720 on the "Useless State of the Lower Limbs in Consequence of a Curvature of the Spine," says :—

"Since I had been particularly attentive to the disorder, I thought that I had observed that neither the extent nor degree of the curve had in general produced any material difference in the symptoms, but that the smallest was, when perfectly formed, attended with the same consequences as the largest, and that the useless state of the limbs is by no means a consequence of the altered figure of the spine, or of the disposition of the bones with regard to each other, but merely of the caries."

Michaud in 1871 fully elucidated the mechanism of paraplegia in Pott's disease, while Thomas Buzzard in 1880 showed that, even in cases with abrupt angular deformity, the compression did not depend upon the distortion of the vertebral canal, but upon inflammatory products lying outside the dura.

On May 9th, 1883, Macewen in a case of angular curvature of the spine with complete sensory and motor paraplegia, with incontinence of urine and fæces, and of two years' duration, removed the laminæ of the fifth, sixth, and seventh dorsal

FIG. 1.

Tumour on which Leyden proposed to operate.

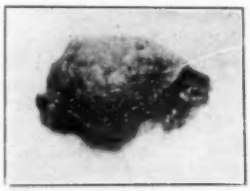
vertebræ. Between the theca and the bone he found a fibrous neoplasm one-eighth of an inch in thickness, firmly attached to about two-thirds of the circumference of the membrane. This was carefully dissected off, with the result that improvement began in 24 hours, going on to complete recovery, so that five years after the patient was playing football and other games. This case was followed by four others of a similar nature, two of which were successful and two fatal, one a week after operation and the other eight months later from generalised tuberculosis. Macewen's success was speedily followed by others; Horsley, White, Abbe, Duncan, Lane, Podres, Boeckel and Israel, reporting successful cases, all of which went to show that in the majority of cases the paraplegia is due to an external pachymeningitis with the formation of an extra-dural connective tissue tumour.

Tumours of the Spinal Cord.

Turning now to the more interesting subject of tumours of the spinal cord, we find that in the 50 cases collected by Horsley in 1887 and a second 50 collected later by Mills and Lloyd, the two including all those of which we have any satisfactory knowledge, no mention is made of operation in a single instance. And yet as early as 1873, Leyden of Strassburg had suggested that tumours of the spinal cord might be submitted to the operation of trephining the spine as the only means of extirpating them. He said that such an operation was as feasible as that for fracture of the spine, and that, in spite of the difficulties of diagnosis and the dangers of the operation, in view of their otherwise absolute hopelessness, an operation in suitable cases was wholly justifiable: "Bei der völligen Hoffnungslosigkeit aber wäre ein Versuch im geeigneten Falle wohl gerechtfertigt." In one case in which he had localised the tumour, he had actually raised the question of operation, but was deterred from going further because the size of the tumour would have necessitated the removal of two vertebral arches, and the opening of the dura would have risked the setting up of a diffuse meningitis. (Fig. 1.)

Then Erb in 1878 discussed the subject theoretically, while Byron Bramwell in 1882 urged an operation in suitable cases, and was supported by Gowers in 1886, who maintained that the removal of a tumour from the spinal meninges was a less dangerous procedure than the removal of a tumour from the brain. The proof of this statement was to come in the following year through the neurological acumen of Gowers and the surgical skill of Horsley, when a previously unrecognised tumour of three years' duration lying on the left side of the fourth dorsal segment was diagnosed by Gowers on June 5th, 1887, and removed by Horsley four days later. There were also present on this epoch-making occasion, which proved to be the birth of spinal tumour surgery, Dr. Percy Kidd, a relative of the patient; Mr. Walter Edmunds, at that time resident medical officer of St. Thomas's Home; Mr. Edwin Francis White, who gave the anæsthetic; the late Dr. Frederick Osmund Stedman, at that time house physician at the National Hospital; and Sir Charles Ballance, who assisted at the operation. (Fig. 2.)

FIG. 2.



Tumour removed by Horsley on June 5th, 1887. (Actual size.)

SPINAL PUNCTURE.

Although lumbar puncture was first used by Corning as far back as 1885, it did not come into general use until 1891, when Quincke in Germany, and Essex Wynter in this country, brought it to the notice of the profession as a means of reducing the increased intracranial pressure in hydrocephalus. Marie, Foix, and Robert in 1913 introduced double spinal puncture and showed that qualitative differences were present in the cerebro-spinal fluid above and below a spinal tumour. Queckenstedt in 1916, using lumbar puncture alone, showed that the pressure in the lumbar canal rose on compression of the jugular veins when there was no spinal block, but did not do so in the presence of an obstruction. This obstruction must, however, be complete; otherwise a positive result may be obtained even in the presence of a tumour.

CISTERNAL PUNCTURE.

Cisternal puncture was first introduced as a clinical aid in diagnosis by Wegeforth, Ayer, and Essick in 1919. It had long been practised on the lower animals as the easiest method of obtaining cerebro-spinal fluid. These authors perfected a safe technique in man, and recommended cisternal puncture for reaching the subarachnoid space (1) when the spinal subarachnoid space is blocked by tumour, adhesions, or bony deformity; (2) in combination with lumbar puncture as a means of irrigating and draining the spinal subarachnoid space; (3) as the best method of administering remedies in meningitis.

Ayer has since elaborated a method of combined cisternal and lumbar puncture as a means of determining the presence or absence of spinal subarachnoid block, especially in tumours. The method is based upon the facts that in the normal individual the cisternal and lumbar fluids are practically identical; their pressures are the same; and oscillations due to coughing, sneezing, holding the breath, or to compression on the jugular veins (Queckenstedt phenomenon) are of similar range.

Although diminished pressure below the block is usual, normal pressures are not uncommon, and occasionally an increased pressure may be found. This last may be due to a valvular action of the tumour, extramedullary in position, allowing a downward but preventing an upward flow of the fluid. Exudation of serum from the distended spinal veins may also be a contributory factor.

In arriving at a diagnosis of spinal subarachnoid block, Ayer bases his judgment on the two-fold criteria:—

1. Evidence of mechanical obstruction to the free passage of fluid in the spinal subarachnoid space as indicated by (*a*) pressure relations at the two points, especially changes in pressure which result after withdrawal of fluid; (*b*) variations in the normal oscillatory movements of the fluid, dependent upon the cerebral pulse and respiration; (*c*) gross changes in fluid pressure caused by pressure on the jugular veins and by coughing, all indicative of mechanical interference with the continuity of the spinal fluid column.

2. Evidence of a different chemical composition of the two fluids (cisternal and lumbar). This latter is based upon the fact that the protein-content of the fluid is normally the same throughout the spinal subarachnoid space, but has always been found increased below an obstruction.

Ayer goes so far as to say:—

"It is reasonable to conclude that protein increase is a more delicate indication of cord compression or meningeal involvement than is demonstrable block."

Greenfield also, from his very large experience at the National Hospital, has expressed the same opinion as to the greater importance of the protein increase over other tests for spinal block.

Normally the total amount of protein in the cerebro-spinal fluid is approximately 25 mg. per 100 c.cm. of fluid. In cases of spinal block this figure may be increased a hundredfold in the stagnant fluid below the block. In addition there also accumulates an excess of other substances, such as mineral salts and glucose, while the engorgement of the spinal vessels leading to a state of increased meningeal permeability causes the spinal fluid to gradually approximate in chemical composition to the blood plasma. Consequently we find in the fluid elements derived from the blood stream which are normally absent. Altered blood, for example, producing the characteristic yellow coloration known as xanthochromia, whilst the presence of fibrinogen may cause the fluid to clot spontaneously in the test-tube. Certain antibodies, such as hæmolysin, may also be detected.

The outstanding features in the cerebro-spinal fluid below an area of spinal compression are therefore: (1) xanthochromia; (2) increase in the amount of protein; and (3) occasional spontaneous coagulation. These three conditions are sometimes spoken of collectively as the "loculation syndrome." The expression "Froin's syndrome" is sometimes applied, but incorrectly, for Froin substituted for an increase in the amount of protein an increase in the number of cells. We now know, however, that such a pleocytosis is an unessential and indeed an uncommon finding.

Occasionally a condition of spinal fluid stagnation is encountered in the fluid lying immediately *above* a tumour, as shown by increased protein-content, with or without xanthochromia. This is explained by a transudation into the fluid either from engorged

veins in the spinal canal or from the tumour itself. As the syndrome occurs in conditions other than tumour, the former would appear to be the more acceptable theory.

In passing, I may mention that the upper limit of the sensory loss may be raised higher than that due to the tumour itself by the pressure of this stagnant column of cerebro-spinal fluid, causing a localised ischæmia of the cord.

PNEUMOMYELOGRAPHY.

The gradual substitution of the cerebro-spinal fluid in the lateral ventricles by air, followed by an X ray of the head as an aid to the diagnosis and localisation of brain tumour, was first introduced by Dandy of Baltimore, who claims to have increased the percentages of correct diagnosis by 10–35 per cent. over those obtained by purely clinical methods. This method of direct insufflation of the ventricles with air was followed by the endolumbar method, devised independently by Dandy, Bingel, and Wideröe, which consists of a replacement of the cerebro-spinal fluid by air by means of lumbar puncture.

With the patient recumbent but at an angle of 50 to 60 degrees, to allow the air to rise quickly in the subarachnoid space 10 c.cm. of cerebro-spinal fluid are withdrawn by lumbar puncture and an equal amount of air injected. In the absence of any spinal block the air passes at once into the cranial subarachnoid space. As a result the patient complains immediately of "a fairly sharp pain" first in the posterior, then in the middle, and finally in the anterior part of the side of the head which is uppermost. According to Dandy, so constant and characteristic is this pain that it can be taken as positive evidence of the absence of a complete spinal block. In the presence of such a block no such pain is complained of. Other observers report, in addition to the severe headache, nausea and vomiting, a rise in temperature, and at times collapse, as sequelæ to the endolumbar method. If on injection air reaches the head at once no more than 10 c.cm. is used. If, however, it does not pass up into the cranial cavity, Dandy advises the injection of as much air as the spinal canal will hold, in order to obtain the maximum effect of the air shadow for the X ray localisation of the tumour.

Apparently air in the spinal subarachnoid space produces no pain comparable to that in the cerebral subarachnoid space, though root pains, unilateral or bilateral, due to the irritation of the air, will radiate along the course of the nerves fixed by a tumour. In Dandy's experience, these pains have always localised a tumour when present. Fleeting and less constant pains may be experienced also in the absence of spinal block.

Liberson in America has devised what he calls "a simultaneous displacement apparatus" for use in the endolumbar method, in support of which he claims that "clinical methods without roentgenographic aid are insufficient for localisation of early brain and cord lesions." As I gather that he is more interested in the roentgenographic than in the neurological aspect of the subject he can scarcely be regarded as an unbiased witness.

A very striking commentary upon this method comes from Wideröe, one of its originators. He reports 11 cases of spinal block, in none of which was he able to discern any shadow whatever by X rays following endolumbar air replacement, and Eskuken says that, owing to the difficulty of observing anything distinctly, the procedure is often useless.

LIPIODOL.

Various attempts had been made by Krause, Simons, and others to visualise the spinal theca by means of solutions opaque to the X rays, but without success. Sicard and Forestier of Paris succeeded in solving the problem by using an iodised oil called "lipiodol" for cisternal and lumbar puncture. Lipiodol, a preparation of poppy-seed oil in which iodine has been incorporated, was originated by La Fay in 1921 and used by him in the treatment of epidemic encephalitis. As this substance did not appear especially irritating to the meninges and was opaque to the X rays, Sicard and Forestier tried it with a view to localising spinal cord compression and were successful.

There seems to be no marked difference between the French preparation, lipiodol, and its German relative iodipin, as far as radiopacity and physiological effects are concerned. The iodine-content is the same in both—i.e., 40 per cent. by weight, or 0·45 g. per c.cm. The iodine is not simply in solution but in the form of a fairly stable chemical combination. Lipiodol is a transparent oil of an amber yellow colour and high specific gravity (1350). Its radiopacity is due to the high atomic weight (127) of its iodine component, while its heavy density explains its passage by gravity from the cisterna magna to the lumbar cul-de-sac.

A more recent modification of lipiodol is the so-called "lipiodol ascendant" or "lipiodol montant." It is lighter than the cerebro-spinal fluid and ascends in the spinal canal when injected into it in the lumbar region. The diminution of its iodine-content, however, reduces its value as a radiopaque medium. Moreover, it has a tendency to adhere to the meninges in its upward passage, causing difficulty or confusion in the interpretation of the X ray shadows. For these reasons we have not found it satisfactory at the National Hospital. Peiper has rejected it entirely on similar grounds.

Technique.

Lipiodol may be injected either into the cisterna magna or into the lumbar canal if the lower level of a block is to be localised. No cerebro-spinal fluid should have been removed from the patient for several hours previous to the injection.

If the injection is into the cisterna magna, it is best and most conveniently done with the patient sitting up in a chair, with the head strongly flexed upon the chest, to open up the space between the occipital bone and the atlas. After preparation of the skin, a point, just to one or other side of the ligamentum nuchæ, is taken on a line joining the tips of the mastoid processes. If thought necessary, the place of puncture may be anæsthetised with a 2 per cent. solution of novocaine. It is well to give the patient a hypodermic injection of morphia, gr. ¼, an hour previous to the injection. It conduces to a quiet mind in the unusual surroundings of the X ray room and alleviates some of the sequelæ to be described later. A spinal puncture needle is entered at the spot selected and pushed steadily forward with a slight inclination upwards in a line with the external auditory meatus and the glabella. Should the point come in contact with the occipital bone, the needle is depressed slightly and pushed slowly but steadily through the atlanto-occipital ligament and dura. The cessation of all resistance at once indicates that this has occurred. Sicard suggests that normal saline solution should be slowly injected as the needle is introduced, to keep the lumen patent, to indicate by the sudden decrease of resistance that the puncture is accomplished, and to remove the medulla from any injury from the entering needle point. No cerebro-spinal fluid escapes as a rule, and requires to be withdrawn by a syringe. But only a very few drops for the purpose of verification should be withdrawn or allowed to escape. Then 1 to 1·5 c.cm. of the lipiodol is injected slowly, followed by a little warm saline to wash out any lipiodol remaining in the needle. The needle is then withdrawn.

One or two points may be emphasised: (1) The oil must be clear and transparent. Brown or turbid oil has deteriorated and should not be used. (2) The viscosity of the oil may be decreased by placing the ampoules in warm sterile water, thus facilitating its injection. (3) Care should be taken to see that the syringe is free from air bubbles before the injection. They tend to hold up the lipiodol at the sides of the meninges.

The technique for lumbar injection is essentially the same but is best performed with the head and shoulders low and the buttocks well raised.

After cisternal injection, and in the absence of any block, the lipiodol reaches the dural cul-de-sac at the level of the second sacral vertebra in a very short time (5–6 minutes). It forms here a large, round, oval or irregular globule. Occasionally there may be some delay at the level of the fourth dorsal vertebra, the narrowest part of the canal. Frequently mall particles of the lipiodol are seen on the lateral

FIG. 3.

Intrathecal extramedullary spinal tumour. Lipiodol shadow with cupped or crescentic lower border.

FIG. 4.

Meningitis serosa circumscripta. Operation 1915, with complete recovery. Recurrence of symptoms 12 years later. Lipiodol arrested at lower end of the previous laminectomy.

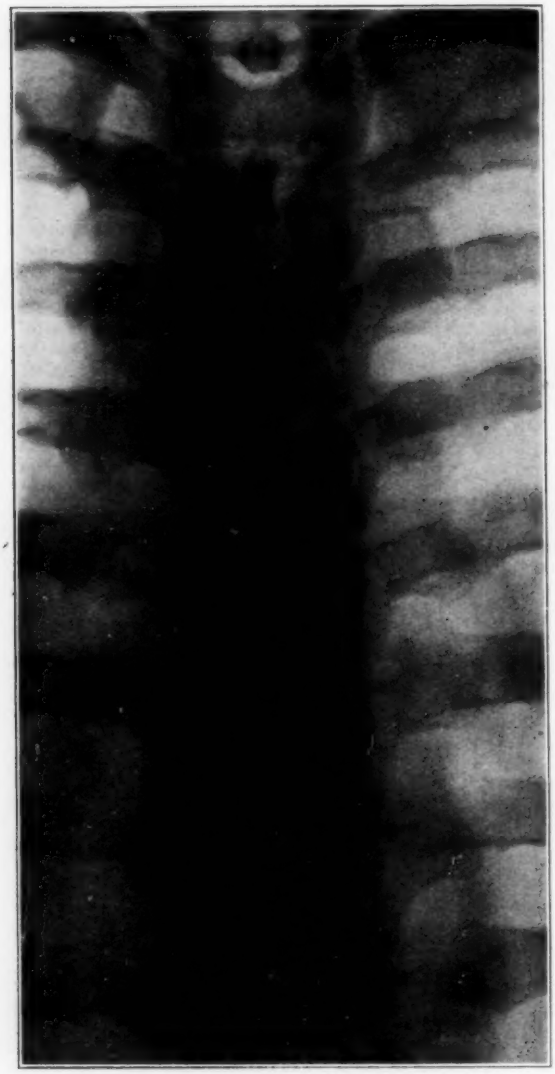
aspects of the canal, probably held up at the exit of the posterior roots or at the attachments of the ligamentum denticulatum. (Fig. 4.) Radiograms are taken at once after the injection, with the patient's head and shoulders raised after cisternal injection and with the patient in the Trendelenburg position after lumbar injection. Should there be a block after cisternal injection additional radiograms should be taken at the end of six hours, again in 24 hours, and at the end of a week. In this way any alteration of the level at which the lipiodol was first checked may be determined.

Irritation of Meninges by Lipiodol.

Can the claim that lipiodol is completely non-irritating to the meninges and can be injected "with unlimited tolerance" be maintained?

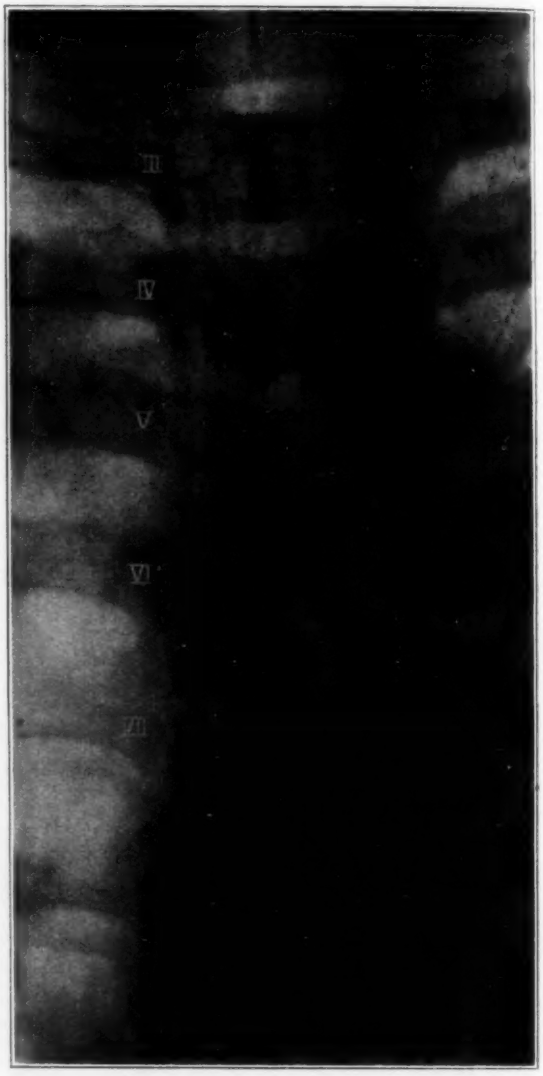
Ayer and Mixter found that in animals there was a meningeal reaction which reached its height in from 24 to 48 hours, when counts of 1000 cells with moderate increase in the protein-content of the cerebro-spinal fluid were noticed. This reaction subsided gradually, and by the tenth day the fluid was normal. I have noticed a distinct meningeal reaction in patients submitted to operation shortly after the injection of lipiodol. The meninges appeared thickened, somewhat reddened and agglutinated, while the cerebro-spinal fluid was slightly turbid. Mixter reports a similar condition, as does de Martel, who, however, does not mention the cerebro-spinal fluid. Sharpe and Peterson report a case where such an inflammatory reaction occurred from the arrested lipiodol at the site of the spinal block in the mid-dorsal region that the patient's symptoms and signs were aggravated to a degree necessitating its removal five and a half months after by laminectomy. The lipiodol was found as two encysted globules, surrounded by numerous newly formed adhesions. In all their other cases the clinical signs and symptoms were aggravated by the lipiodol injection.

FIG. 5.



Intrathecal extramedullary spinal tumour. Lipiodol shadow with small cupped or crescentic lower border.

FIG. 6.



Extrathecal spinal tumour with sensory-lipiodol dissociation Sensory level at the fourth dorsal segment. Lipiodol arrested between the fifth and sixth dorsal vertebræ. The tumour lay beneath the lower part of the lamina of the sixth dosal vertebra.

Moniz of Lisbon reports these sequelæ following upon lipiodol injection in a case of hypertrophic meningitis associated with cavity formation in the cord.

"The next day the patient complained of a sense of constriction in the upper part of the chest and diminished power in the upper limbs. He could not flex nor extend the fingers, lost the power of flexion of the forearms and movements of the arms and shoulders. He had for several days movements which resembled myoclonic contractions in the arms and forearms. Examination revealed that a very slight hypoæsthesia reached to the middle of the neck. These symptoms passed off in three weeks."

Moniz attributes them to a local irritation caused by the lipiodol and thinks they are determined by the local state of the meninges and cord. He has also seen similar, but less intense, phenomena in cases of meningitis serosa circumscripta. He thinks such sensori-motor disturbances following the injection of lipiodol point to a diagnosis of pachymeningitis.

At the National Hospital, following upon the injection of lipiodol, there has been found commonly: (1) Increase in the root-pains at the site of the lesion, lasting for some hours. (2) General soreness and stiffness of the back muscles. (3) Headache. (4) Rise in temperature. Less commonly, there has been increased difficulty in micturition in cauda equina lesions. In a case which eventually proved to be one of disseminated sclerosis, injection of lipiodol gave rise to pain on one side of the face, twitching of the left arm and leg, with sensation of pins-and-needles in the left leg. These symptoms lasted for 24 hours.

Ebaugh and Mella, who have investigated the subject, find that pains in the legs occurred in 30 per cent. of patients, rise in temperature (101·6°) in 23 per cent., nausea and headache in 7 per cent., leucocytosis in 30 per cent., pleocytosis in 60 per cent., and sleeplessness and restlessness were "frequent." From

the cellular increase in the cerebro-spinal fluid, the increase in the protein-content, and the frequent presence of blood on lumbar puncture (27 per cent.) they conclude that as a result of the lipiodol injection an aseptic chemical meningitis is produced. These local and systemic symptoms usually disappear after a few days without apparently any permanent effects.

Forestier maintains that any severe sequelæ are not due to the lipiodol but to the puncture alone. He does not think that the lipiodol should be regarded as a permanent foreign body, because, even if it takes a long time to be absorbed, the absorption is at any rate continuous by means of a normal histological reaction.

Interpretation of the Results Obtained.

How much reliance can be placed upon lipiodol localisation? A correct interpretation of the X ray films is of paramount importance. The lipiodol may move slowly, or even be held up for a short time, the "false arrest" of French writers. Such temporary arrest may take place, as before mentioned, at or about the level of the fourth dorsal vertebra, and in small rounded masses at irregular intervals on the walls of the spinal canal. These latter are of little or no significance. Laplane thinks that "false arrest" can be differentiated from true arrest by the shape of the shadow and by its fixation. In the latter the lipiodol has stopped owing to a real obstruction, and reversal of the patient's position will cause it to flow away again. In false arrest, on the contrary, the lipiodol has become adherent to the meninges or nerve roots, and will not alter its position on reversal of the patient.

It would be of great importance if the shape of the lipiodol shadow could give any indication as to the nature of the lesion or process involved. Mixter thinks that it can and says that a cap or crescent, complete or incomplete, means an extramedullary tumour, or Pott's disease with an intraspinal abscess; while narrow lines of lipiodol at either side with an irregular mass above suggest a fusiform enlargement of the cord itself. (Figs. 3 and 5.) But the consensus of opinion does not support him. Eskuchen in Germany and Piccinnino in Italy hold that it has not proved possible, as was at first hoped, to draw any conclusion from the form of the lipiodol shadow as to the nature of the process involved.

On this point the findings of Mme. Sorell-Dejerine, with reference to paraplegia in Pott's disease, are most interesting and instructive. In cases in which the paraplegia had been transitory, probably from œdema or vascular disturbances, the transit of the lipiodol was normal. In cases cured of the paraplegia, which had been associated in its development with an intravertebral abscess, there persisted a slight hold-up at the level of the original lesion, but this was only transitory, and after a few days all the lipiodol was found in the dural cul-de-sac. In a developing paraplegia associated with an intravertebral abscess there was a lipiodal arrest, the lower limit of which was not horizontal, but had one or several prolongations. This arrest persisted as long as the paraplegia was stationary. When the compression regressed the lipiodol progressively fell as the subarachnoid space became freer. In old cases of paraplegia associated with a pachymeningitis, the lipiodol arrest persisted, with a distinct and horizontal lower border.

Moniz describes the unusual and interesting behaviour of lipiodol in a case of hypertrophic pachymeningitis with cavity formation in the cord.

The lipiodol had never become fixed during the course of three months. An hour after injection it was arrested at the level of the atlas and axis, but 24 hours later it had become elongated and showed a tendency to divide into two parts. The next day it had divided, one part remaining in the original place, the other lying between the third and fourth cervical vertebræ with a small piece at the fifth. Nine days later the detached portion had progressed in chain formation as far as the seventh cervical and upper dorsal vertebræ. Ten days later, or 20 days after the injection, none of the lipiodol had reached the cul-de-sac. In the cervical region there were large scattered drops, but it lay mostly at the level of the fourth and fifth dorsal vertebræ, with some also in the lower dorsal region.

Three months afterwards, scattered droplets of varying size were found in the cervical region and in smaller numbers at the level of the first and second dorsal vertebræ. The lipiodol which had descended started from the fifth dorsal, but was more compact at the level of the tenth, eleventh, and twelfth dorsal, where it had taken the form of a stalk occupying the mid-region with slight interruptions in its length.

Negative Findings.

Babinski and Vincent have raised the question of the value of negative findings with lipiodol. Can medullary compression be excluded with a negative lipiodol result? Assuredly not. Ayer holds that fluid findings by his combined method may be normal in every respect, even in the presence of compression of the cord. He quotes, in support of his thesis, a case in which a multilocular epidural cyst was found at subsequent operation. Carmichael has recently seen in London a spinal tumour at the level of the ninth dorsal segment removed from a patient in whom the lipiodol findings were absolutely negative. Wilfred Trotter informs me that he has operated on cases in such an early stage that the lipiodol transit must have been uninterrupted. In 1925 I operated on a patient of Gordon Holmes, who had localised a tumour three months after the onset of root-pain. Here the very small size of the tumour could not possibly have interfered with the descent of the lipiodol. There is no doubt that with small tumours, or in rare cases where narrowing of the cord results from destructive new growths, such negative results will occur. Yet, like other French enthusiasts, Forestier says that the great diagnostic value of lipiodol is that it reveals spinal compression long before sensory changes or paraplegia appear.

De Martel reports four cases with arrest of lipiodol at a definite level, for which he could find no adequate reason at the time of operation. In two of them it would appear that the lipiodol arrest was the only indication for operating.

Conflicting Evidence.

Again, cases occur in which the neurological and lipiodol levels do not correspond. In other words, there is a sensory-lipiodol dissociation. In some, the sensory level is higher than that of the lipiodol arrest. (Fig. 6.)

Such a one occurred in the service of Grainger Stewart at the National Hospital in 1925. There was complete anæsthesia and analgesia up to the level of the fourth dorsal segment with a band of hyperæsthesia. Lipiodol showed an arrest between the fifth and sixth dorsal vertebræ. On removing the second, third, and fourth dorsal laminæ no pulsation of the cord was visible. On opening the dura, the cord presented, without pulsation, enveloped in a cystic formation of milky arachnoid membrane, which appeared to be widespread. The spinal veins were varicose and tortuous. Above the level of the fourth dorsal segment the cord pulsated.

In the belief that the condition was a circumscribed serous meningitis, the adhesions were freed as far as possible and the wound closed. No improvement followed, however, and the patient died.

As a result of the autopsy, Dr. J. G. Greenfield reported "a tumour the size of a large broad bean, compressing the left posterior region of the cord, but lying altogether outside the dura. It lay between the left sixth and seventh dorsal transverse processes and passed forwards slightly in the intercostal space, being attached to the left sixth dorsal root. The laminectomy wound ceased at the fifth dorsal spine and transverse processes, and as the tumour lay under the lower part of the lamina of the sixth dorsal vertebra, it had not been found." Microscopically, it proved to be a neurofibroma.

And again, the lipiodol may be arrested at a point two or three segments higher than the sensory level. Souques noted in one of his cases an error of three segments and Moniz, in one of his, an error of two segments.

In the one case the sensory-lipiodol dissociation may be explained on the assumption that the higher sensory level is due to the pressure of the stagnant

fluid above the tumour and a localised ischæmia of the cord. In the other, the lipiodol may be held up by meningeal adhesions above a tumour, or, in a case of meningitis serosa circumscripta, at a level higher than the place where actual compression of the cord begins.

Given a sharp sensory level I much prefer to depend upon it alone and to operate without the use of lipiodol. One has then a clean operative field within the canal, where a clear vision is of such a great preliminary advantage, and the clean and rapid removal of the tumour, or the separation of adhesions is not impeded by the dirty mess resulting from the lipiodol. It is in cases, in which the sensory level is not sharp and well defined, but gradually fades away as one passes upwards, that lipiodol has its greatest field of usefulness.

The Place of Myelography in Diagnosis.

It is not to be wondered at that any means which can be readily and easily applied, and is thought to provide a royal road in such a difficult field as the diagnosis and accurate localisation of spinal cord compression, should have been eagerly seized upon and widely exploited. This has happened with lipiodol. Yet it is surprising that from the home of labour-saving devices, America, there should arise such widespread and emphatic warnings against its indiscriminate use and abuse.

Mixter, of Boston, says :—

"In the practice of medicine we must look more or less askance at any new diagnostic procedure which may carry a considerable element of danger. For this reason it is wise to consider carefully the use in the cerebro-spinal space of a substance opaque to the roentgen ray."

Schmidt, of Denver, has just recently summarised his views on the use of lipiodol in the following words :—

"The problem of myelography may be considered solved as far as the principles and the technique of the method are concerned; it is not solved as far as the contrasting medium is concerned. Both iodized oils available at the present time, lipiodol as well as iodipin, should be used only under the strictest observation of indications and precautions."

Even Dandy, one of the originators of the endolumbar air replacement method of localisation, acknowledges that a correct diagnosis and localisation of spinal tumours can be made in over 90 per cent. of cases by a "painstaking neurological examination."

I consider myself very fortunate in being attached to a hospital for nervous diseases, where the art and science of diagnosis and localisation have reached an extraordinarily high level. I find that in the last five years 98 per cent. of our cases of spinal tumour have been correctly localised by such painstaking neurological examination. For this reason one has had to have less recourse to what I may call artificial aids to diagnosis and localisation than might have been necessary under different circumstances.

In conclusion, I would formulate the following rules regarding the use of lipiodol in the diagnosis and localisation of spinal cord compression :—

1. Its use should in no way usurp the place of careful and repeated systematic clinical examinations of the patient, especially with reference to a sensory level, combined with laboratory tests of the cerebro-spinal fluid. Recourse to it as a labour-saving device and a short cut to diagnosis and localisation cannot be too strongly deprecated.

2. It should only be used after a subarachnoid block has been first demonstrated by the combined cistern-lumbar puncture method introduced by Ayer.

3. It should not be used unless the possible dangers and complications are outweighed by the more exact localisation likely to be obtained.

4. Finally, in properly selected cases, we have in lipiodol a definite aid in the study of spinal cord compression, which, if used intelligently, will increase definitely our successful removal of spinal cord tumours at an earlier stage in the course of the disease, and thereby increase our percentage of cures and reduce our operative mortality.

BIBLIOGRAPHY.

HISTORICAL.

Auvray et Mouchet: Maladies du Rachis et de la Moelle, Paris, 1913.
Albert: Lehrbuch der Chir., vol. ii., p. 55, Vienna, 1884.
Allingham: Brit. Med. Jour., April 13th, 1889.
Abbe: New York Med. Record, Feb. 9th and July 26th, 1889.
British and Foreign Medical Review, 1838.
Brown-Séquard: Physiology and Pathology of Nerve Centres, 1870.
Buzzard: Trans. Clin. Soc., Lond., vol. xiii., 1880.
Boeckel: Phil. Med. Times, Sept. 8th, 1883.
Bramwell: Diseases of the Spinal Cord, 1882.
Bell, C.: Observations on Injuries to the Spine, London, 1824, p. 19.
Chipault: Gaz. des. Hôp., Sept. 13th, 1890, p. 809.
Duncan: Edin. Med. Jour., March, 1889.
Elliott: New York Med. Jour., June 2nd, 1888.
Eve: Amer. Jour. Med. Sci., July, 1868.
Gordon: Med. Times and Gazette, vol. ii., Dec. 9th, 1865.
Gowers and Horsley: Trans. Med. Chir. Soc., vol. xxxi., 1888.
Halsted: Philadelphia Medical Jour., Jan. 3rd, 1885.
Hart: Brit. Med. Jour., March 23rd, 1889.
Heister: General System of Surgery, book i., chap. vi., p. 143, London, 1745.
Hildanus: Observation, 1641, vol. ii., 247.
Hippocrates: Adam's Trans. Sydenham Society Publications.
Hutchinson: American Med. Times, 1861.
Hutchinson: Clinical Lectures and Reports, vol. iii., p. 327.
Israel: Berl. Klin. Wochnschr., March 6th, 1882.
James: Medicinal Dictionary, London, 1745.
Lane: Brit. Med. Jour., April 20th, 1889.
Lauenstein: Centralbl. f. Chir., No. 51, 1886.
Le Gros Clark: Brit. Med. Jour., July 17th, 1869.
Leyden: Klinik der Ruckenmarks Krankheiten, Berlin, 1874, vol. i., p. 467.
Lidell: Internat. Encycl. of Surgery, vol. iv.
Louis: Arch. gén. de Méd., vol. xi., p. 417, 1836.
Macewen: Brit. Med. Jour., August 11th, 1888.
Michaud: Sur la Meningite et la Myelite dans le mal vertebral, 1871.
Morris: Ann. of Surgery, iii., 490.
Nunnely: Med. Times and Gazette, August, 1869.
Podres: Russkaja Med., No. 19, 1886.
Shaw: Holmes's Surgery, vol. iv., p. 130.
South's Notes to Chelius's Surgery, vol. i., p. 539, 1847.
Tyrrell: Cooper's Lectures on Surgery, vol. ii., 1825.
Weir-Mitchell: Amer. Jour. Med. Sci., May, 1889.
Werner: Die Trepanation der Wirbelsände, 1879.
White: Ann. of Surgery, 1889, x.

GENERAL.

Ayer: Arch. Neur. and Psych., 1920, iv., 529; 1922, vii., 38; 1923, x., 420; and Trans. Amer. Neur. Assoc., 1921, 272.
Ayer and Mixter: Arch. Neur. and Psych., 1924, ii., 499.
Babinski: Rev. Neurol., i., 1924.
Bull. et Mém. Soc. Méd. des Hôp. de Paris, 1922, No. 10.
Dandy: Ann. Surg., 1919, lxx., 387; Johns Hopkins Hosp. Bull., 1922, xxxiii, 188.
Ebaugh: Amer. Jour. Med. Sci., 1925, clxix., 865.
Ebaugh and Mella: Amer. Jour. Med. Sci., 1926.
Eskuchen: Klin. Wochenschr., 1925, iv., 870.
La Fay: Bull. Générale de Thérap., Paris, 172, 1921.
Forestier: Progrès Médical, 1925, No. 2, 802.
Froin: Gaz. d. Hôp. de Paris, 1903, lxxvi., 1005.
Greenfield and Carmichael: The Cerebro-spinal Fluid in Clinical Diagnosis, London, 1925.
Ironside and Shapland: Brit. Med. Jour., 1924, i., 149.
Jacobeus: Acta Med. Scand., 1921, lv., 555.
Klose and Peiper: Arch. f. Klin. Chir., 1925, cxxxiv., 303.
Krause: Deuts. Med. Wochenschr., 1912, xxxviii, 1913.
Marie, Foix, and Bouttier: Rev. Neur., 1914, xxvii., 315.
Marie, Foix, and Robert: Rev. Neur., 1913, xxv., 712.
De Martel: Rev. Neurol., i. and ii., 1923.
Moniz: Lisboa Medica, 1925, ii., No. 2, p. 57.
Moniz: Rev. Neur., 1925, ii., 433.
Mixter: Arch. Neur. and Psych., July, 1925.
Peiper: Deuts. med. Wochenschr., Jan. 1st, 1926, p. 22.
Piccinino: Arch. di. Radiol, 1925, i., 381.
Queckenstedt: Deuts. Ztschr. f. Nerv., 1916, lv., 325.
Russell: Jour. Amer. Med. Assoc., 1924, lxxxii.
Sargent: Brit. Med. Jour., 1923, ii., 174.
Sharpe and Peterson: Ann. of Surg., 1926, lxxxiii., 32.
Sicard and Forestier: Rev. Neurol, 1921, vi.
Sicard, Forestier et Plane: Revue Neurol., 1923, i.
Sicard, Haguenau et Plane: Revue Neurol., 1924, i.
Sorell-Dejerine: Contribution à l'étude des Paraplégies Pottiques, Paris, 1926.
Wartenberg: Med. Klinik., 1924, xx., 665.
Widerõe: Norsk Magazin f. Laegevid, 1921, lxxxii., 491.

Dr. William Seaman Bainbridge, New York, has been decorated with the Cross of the Order of Polonia Restituta by the Polish Ambassador to Washington.

THE Association of Bad-Nauheim Doctors has reissued an illustrated booklet in English, describing the treatment given at the Spa and the types of disease for which it is suited. Copies may be had from the Association.

CARDIOSPASM.

BY JOHN MORLEY, CH.M. MANCH., F.R.C.S. ENG.,
HON. CONSULTING SURGEON, ANCOATS HOSPITAL; HON. ASSISTANT SURGEON, MANCHESTER ROYAL INFIRMARY; LECTURER IN APPLIED ANATOMY, MANCHESTER UNIVERSITY.

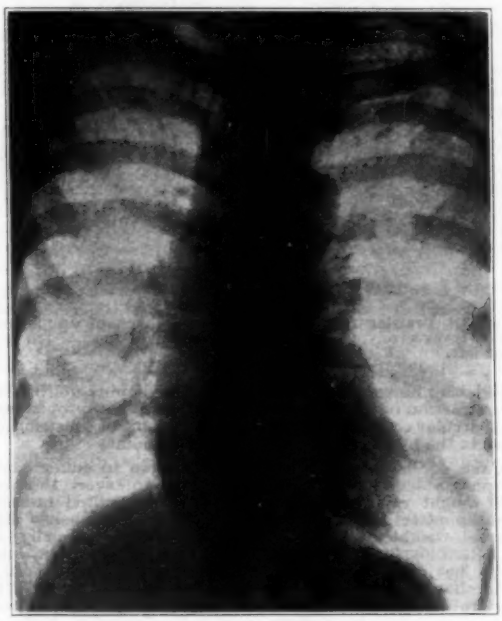
THE various terms under which this remarkable condition has been described—viz., cardiospasm, achalasia of the œsophagus, idiopathic dilatation of the œsophagus, phrenospasm, hiatal œsophagismus, indicate how little is known with regard to its essential nature and causation. Before entering upon a brief discussion of these problems it will be convenient to describe in some detail a few illustrative cases.

Clinical Records.

CASE 1.—A. H., a married woman aged 44, began to suffer from pain under the sternum eight years ago, at the age of 36. This pain was noticed immediately after a meal. After a few months she became conscious of difficulty in swallowing, and fluids presented quite as much difficulty as solid food. X ray examination at Ancoats Hospital, when the symptoms had persisted for one year, showed a great ballooning of the œsophagus, which the radiologist considered to be due to an organic stricture. There was, however, no history of swallowing a corrosive fluid, while the radiographic appearance did not suggest carcinoma. Attempts to pass bougies into the stomach proved unsuccessful, and were not persisted in for fear of penetrating the ballooned œsophagus. Under a general anæsthetic I performed a gastrotomy, and found that I was able to pass a full-sized bougie from the stomach up through the cardia with the greatest ease.

After this operation it was found possible to pass a large bougie into the stomach from above, and this was carried out at frequent intervals for some months. For the first 12 months after operation the swallowing was much better.

FIG. 1.



CASE 1.—Showing barium meal held up in lower end of œsophagus.

After that period the pain and dysphagia returned, and have troubled her more or less ever since. Of late years she has obtained little relief from the passage of bougies. When she feels the food obstructed there is severe retrosternal pain, which is only relieved by "vomiting" up the contents of her œsophagus. She states that she brings up a large amount of slimy stuff—so much, in fact, that she does not know where it all comes from. She is thin, but for the last six years her weight has remained constant. The present state of her œsophagus is shown in Fig. 1, in which some barium porridge is seen held up on the lower end of the greatly dilated œsophagus. In Fig. 2 a mercury tube has been passed into the stomach. The tube was

FIG. 2.

CASE 1.—Showing mercury tube passed into stomach (lower shadow), with some barium still held up in lower end of dilated œsophagus.

guided through the cardia under the fluorescent screen, and its passage into the stomach excited considerable retching and nausea.

CASE 2.—M. M., a married woman aged 25, was admitted to the Royal Infirmary under my care on Feb. 6th, 1925, complaining of difficulty in swallowing. The trouble began at the age of 14, when for no apparent reason she began to "vomit" after each meal. For a period of about two months she had to get up from the table regularly, and returned most of her food unchanged. One day, feeling that the food was lodging in her throat, she found that by pressing her finger-tips deeply into the suprasternal notch, leaning forward, and making a forcible effort to swallow, she could push the food down into the stomach and obviate the "vomiting." Since learning this trick she has never "vomited," but at the end of a meal a mouthful or two of food will sometimes regurgitate into her mouth. She can usually succeed, by making a forcible effort in the manner described above, in propelling the greater part of a meal down into the stomach. When she does so, she is conscious of a sense of relief, though she complains of no actual pain while the food is held up in the œsophagus. Her weight has kept fairly constant, and is now 7st. 4½ lb. The dysphagia never varies from day to day, unless she has a cold, when it is usually a little worse.

Previous Medical History.—She suffered from "bilious attacks" with headaches when a young girl, but not since she grew up. Menstruation began at 16. She married at 21 and has had three children. She had no unusual amount of morning sickness in any of the pregnancies, and the dysphagia was neither better nor worse during pregnancy and puerperium. The family history revealed nothing of importance.

Condition on Admission.—The patient was a small, spare young woman, intelligent but decidedly not neurotic, with a slight prominence of the thyroid. The prominence was found to depend on the presence of food in the dilated œsophagus, as it disappeared after washing out the

œsophagus. X ray examination (Fig. 3) showed enormous dilatation of the œsophagus throughout its whole length. Practically all the barium porridge was held up by the cardia, and the œsophagus showed increase in length as well as in width, so that it was coiled up above the diaphragm

FIG. 3.

CASE 2.—Barium in dilated S-shaped œsophagus.

in an S shape. When the patient pressed on her suprasternal notch and made a violent effort to swallow, a considerable amount of food, perhaps half the contents of the œsophagus, was forced into the stomach.

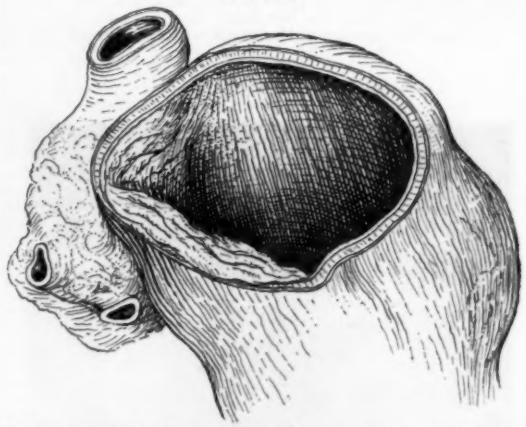
An attempt was made to guide a Hurst's mercury tube through the cardia while the patient stood upright behind the fluorescent screen. The tube curled up in the ampulla of the œsophagus without engaging in the cardia, and as it caused much retching, the attempt was soon abandoned. For the next week the œsophagus was washed out daily with a stomach-tube and funnel, and the patient learned to tolerate the passage of the tube without retching. At the end of a week a second attempt was made with the mercury tube. Seated behind the fluorescent screen the patient herself lowered the tube down the œsophagus. The first attempt was unsuccessful, and the tube was coiled up in the lower end of the gullet. The tube was then withdrawn a little, and the patient was asked to lean sideways towards the left. The end of the tube was seen to engage in the cardia, which, after holding it up for a short time, relaxed under its weight and allowed it to slip through into the stomach. Its passage into the stomach caused a violent attack of retching and vomiting. The tube was easily withdrawn. The next day the patient found that she could herself pass the tube into the stomach without difficulty. She is now at home, and has been given a mercury tube to use daily.

CASE 3.—H. E., a married woman aged 39, was admitted to St. Mary's Hospital, Manchester, on Jan. 22nd, for what was considered to be hyperemesis gravidarum. She was six months' pregnant. She gave a history of intermittent epigastric pain after food and sickness for the last 16 years. She had had one full-term baby, and had suffered considerably from sickness during that pregnancy. The vomiting during the present pregnancy had been persistent from the third month, and for the last month before admission had been very severe. Latterly she had vomited as many as 20 times a day, and had been unable to retain even fluids.

Her condition on admission was one of extreme weakness and emaciation and she vomited after every drink. On the third day after admission she had a complete spontaneous abortion, but without any relief as regards the incessant vomiting. I was asked to see her five days after the abortion. She was then in a desperately weak condition, emaciated, with sunken features and a scaphoid abdomen. She was transferred to the Royal Infirmary under my care with a provisional diagnosis of hour-glass contraction of the stomach due to an ulcer near the cardia. Within 24 hours of her admission she vomited a foul-smelling dark fluid that the house surgeon and ward sister considered to be a typical stercoraceous vomit. The abdomen still showed an entire absence of distension, but there was some rigidity and tenderness in the epigastrium. In spite of her poor condition I decided to explore the abdomen, and found an empty tubular stomach and collapsed intestines, with a small perforated ulcer on the anterior wall of the duodenum immediately beyond the pylorus. There had been practically no escape of bile or duodenal contents, and the edges of the ulcer showed no induration. The ulcer was sutured and invaginated, and I closed the abdomen with a feeling of profound scepticism as to the stercoraceous vomit. Two days later she died, and a post-mortem examination revealed the enormously dilated œsophagus shown in the illustration (Fig. 4). The œsophagus throughout its whole length was as wide as a large stomach, and its muscular coat was very greatly hypertrophied. At the point where it passed through the diaphragm the dilatation terminated abruptly, and the lumen became extremely narrow. There was no organic stricture, however, and a finger could be pushed through the narrow lumen without much force.

A careful dissection of the diaphragm and œsophagus showed that the stenosis was not due to constriction by the

FIG. 4.



CASE 3.—Drawing from post-mortem specimen of œsophagus cut transversely. Contrast with section of normal trachea on left.

interlacing fibres of the right crus of the diaphragm, but to a contraction of the circular muscle-fibres of the œsophagus. The circular coat was not thicker at the point of constriction than in the hypertrophied wall above this joint.

CASE 4.—F. J. C., male aged 36, began to suffer from dysphagia seven years ago. It became so severe that he lost weight rapidly, and when he first consulted me six months after the onset he was nearly 2 st. below his normal weight of 11 st. After his meals, especially if he bolted his food, he would feel a choking sensation, and would have to return the meal. X ray examination at that time showed bismuth held up in the œsophagus, with a moderate degree of dilatation. The passage of full-sized bougies brought immediate relief. He began to put on flesh and soon regained his normal weight. The swallowing is still not normal, however. Occasionally if he bolts his food it will stick as before, and a recent bereavement brought some increase in the dysphagia. He has always more trouble with fluids than with solids, and hot drinks pass down more readily than cold. He feels that the drink "meets some wind" in the gullet and at first lies above the wind. Then he brings up wind and the food at once goes down into the stomach. Examination by X rays showed that the barium was held up for some minutes above the cardia, and that the œsophagus above the barium contained a long column of air. Then came a sudden wave of contraction

down the œsophagus and the column of air, acting like a ramrod, seemed to thrust the food on into the stomach. At the same time a spasm of the upper sphincter of the œsophagus relaxed and the air was belched up, with an immediate sense of relief to the patient.

Ætiology.

The condition illustrated by the four cases described above is found, as a rule, in females and arises during early adult life. Although there is no well-defined anatomical sphincter at the lower end of the œsoghagus at all comparable with that controlling the pyloric outlet, there can be no doubt as to the presence of a physiological sphincter. It is a persistent failure of this cardiac sphincter to relax, both during and after the process of deglutition, that gives rise to these remarkable symptoms. Hurst [1] prefers the term cardiac achalasia (or non-relaxation) as being more accurate than cardiospasm. He argues that there can be no real spasm, as a mercury tube when once passed can readily be withdrawn without any apparent grip on the part of the sphincter, while in cases that have come to post-mortem examination there is no hypertrophy of the contracted circular muscle-fibres. A sphincter, however, that can hold up for an indefinite period a column of food eight or more inches in height, often against the full force of violent peristaltic contractions of the œsophagus, is in a state of highly abnormal tonic contraction, for which I think the older term cardiospasm has much to recommend it.

As to the essential cause of the spasm we know as singularly little as is known of the spasm of the upper sphincter, which often precedes the formation of a pouch. To describe it as an incoördination of the neuro-muscular control of deglutition only leads us to ask what causes this incoördination, and to that question we can as yet give no reply. It is necessary to emphasise the point that these patients are by no means of a neurotic or hysterical temperament. The theory of Chevalier Jackson that the obstruction is due to a spasm of the right crus of the diaphragm must be rejected, since division of the right phrenic nerve in cases of cardiospasm has failed to affect the obstruction. Recorded cases in which degeneration of the vagi has been found are exceptional and atypical. Some evidence of hyperæsthesia of the cardiac mucosa may be inferred from the very violent retching that occurred in two of my cases when the mercury tube passed through the sphincter into the stomach. Association with pregnancy appeared to have a profound effect in my third case, though the symptoms had been present in some degree for many years. It is important in this connexion to note that Vinson [2] has reported from the vast resources of the Mayo Clinic six cases of œsophageal stricture following the vomiting of pregnancy. Though his report does not make clear the nature of the stricture in all the cases, it would appear that in some, at any rate, it was spasmodic.

Diagnosis and Treatment.

The diagnosis is made in part by the clinical history, as the absence of corrosive poisoning will eliminate the ordinary fibrous stricture, while the long duration of symptoms, the greater trouble with fluids than with solids, and the age of the patient will often help to exclude carcinoma. The radiographic appearance, however, is characteristic, and should always make the diagnosis plain.

Until we know the real cause of the condition *treatment* must be essentially palliative. Plummer [3] passes his hydrostatic dilater into the cardia, guided by a previously swallowed thread. He has reported a large series of cases with a high proportion of successful results. The method, however, is painful, and, according to Hurst, not free from danger. The introduction by Hurst of a mercury-filled rubber tube was a real advance in the treatment. It should be passed first by the surgeon under the fluorescent screen, and the patient may then pass it herself, at first before each meal, and then at such gradually increasing intervals as the result may demand. R. P. Rowlands, in a case of Hurst's [4] that resisted treatment by his tube, performed a kind of Rammstedt's operation, dividing the muscular coat of the entire cardiac sphincter longitudinally, with a satisfactory result. Lambert, [5] in 1914, recorded a case in which he enlarged the œsophageal opening in the diaphragm, drew down part of the dilated œsophagus, and performed an œsophagogastrostomy. P. Bull [6] has recently recorded four cases of œsophagogastrostomy by the abdominal route, with very good results. It is an operation of severity and considerable risk, and I have so far no personal experience of it, but for the worse type of case in which the spasm will not yield to the simpler method of dilatation by the mercury tube it may acquire an established place in the surgical treatment. A simpler procedure, originally advocated by Mikulicz, consists in performing gastrotomy, and dilating the cardia digitally through the open stomach. This method has received recent support from Walton, [7] who reported a highly successful series of cases. Though by no means free from risk, it must be regarded as less dangerous than œsophagogastrostomy. Until this method has been tried more widely, and sufficient time has passed to assess the permanence of the relief it affords, a final judgment as to its value must be withheld.

References.

1. Hurst, A. F. : Quart. Jour. Med., 1915, viii., 230.
2. Vinson, P. P.: Surg., Gyn., and Obst., 1921, xxxiii., 412–413.
3. Plummer, H. S., and Vinson, P. P.: Med. Clin. N. America, 1921, v., 355–369.
4. Hurst, A. F. : Brit. Med. Jour., 1925, i., 145.
5. Lambert, G. : Surg., Gyn., and Obst., 1914, xviii., 1–9.
6. Bull, P. : Acta Chirurgica Scandinav., 1925, lviii., 581–626.
7. Walton, A. J. : Brit. Jour. Surg., 1925, xii., 701–737.

A CASE OF SEVERE ANÆMIA OF PREGNANCY

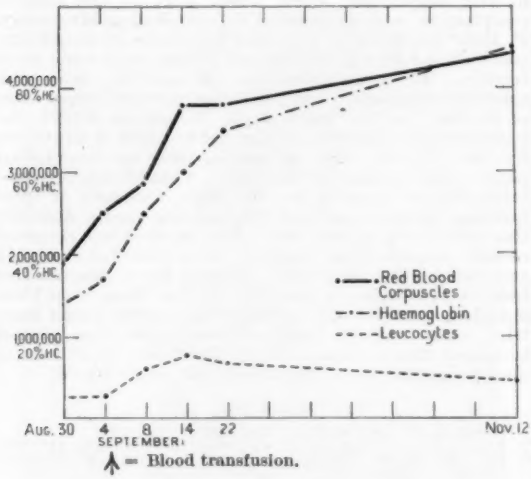
SIMULATING ADDISON'S ANÆMIA.

BY T. JENNER HOSKIN, M.D. CAMB., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN, ROYAL FREE HOSPITAL;
AND
ENID CEIRIOG-CADLE, M.B., B.S. LOND.,
HOUSE PHYSICIAN, ROYAL FREE HOSPITAL.

THIS condition is extremely rare in England, but has been described in the United States, and is not uncommon in Northern India. It was first described by Walter Channing in 1842. [1] He distinguished it from anæmia due to hæmorrhage, and discussed its dangers; his cases had a high mortality. He discussed the possible benefits of blood transfusion. Osler [2] described a severe progressive post-partum anæmia unassociated with hæmorrhage, some cases had high fever suggesting typhoid, but all recovered. He found the condition extremely rare in England. Larrabee [3] described 15 cases of post-partum anæmia, seven with the secondary type, and eight with the pernicious type of blood picture. The secondary anæmias were more common in multiparæ, and all these gave a history of anæmia, hæmorrhage, or definite severe infection associated with previous pregnancies.

In five of the cases of the pernicious type the onset was after delivery. He found the influence of previous pregnancies was less marked than in the cases of secondary anæmia. The cases of pernicious type averaged 22·4 per cent. hæmoglobin, with 930,000 red cells, blood cells, and colour-indices from 0·67 to 1·54; in only two cases was the colour-index less than one. Abnormal red cells were always present. The white cell-count varied from 10,200 to 1800, averaging 5500; four cases had a relative lymphocytosis. Five of these cases had sore mouths and two had fever; in five the spleen was palpable, and the liver in two. Two premature infants were stillborn; the six full-term babies were perfectly healthy.

Larrabee recommends treatment by a single blood transfusion; of his eight cases, the four who had been transfused recovered, whilst three of the others died. Smith [4] described eight cases of a pernicious type of anæmia with achlorhydria, associated with pregnancy occurring in women from 18 to 34, including



= Blood transfusion.

two primiparæ. Leucopenia was noted in seven of his cases and stomatitis in three. Five of his cases had blood transfusions, and two, of whom one had been transfused, died. He recommends repeated blood transfusions and treatment with dilute HCl, as he considers the achlorhydria the main ætiological factor.

With regard to prognosis, Galloupe and O'Hara [5] state that the anæmia recurs with increasing severity in later pregnancies, but Larrabee and Osler describe cases of subsequent uncomplicated pregnancies.

The ætiology of this condition is obscure. Adler [6] considers that the condition occurs in predisposed women, but has no relation to Addison's anæmia. Rowland [7] states: "A syncytial hæmolysin is produced in the ectodermal cells of the chorion. Later an antihæmolysin is found in the maternal blood, failure in the formation of which results in persistent anæmia." Hein [8] considers Addison's anæmia very rare in pregnancy.

Clinical Record.

Mrs. A. B., aged 30, was admitted to hospital on August 28th, 1926, under the care of Dr. Hoskin, complaining of fever and pallor.

History.—Previously a healthy woman, she had lived in India for the last three years; she had never had malaria or other fever, but during the hot weather had had occasional attacks of diarrhœa, with three or four large pale stools a day, such as occur in sprue. Four weeks before admission she had a perfectly normal confinement, a full-term healthy baby, and no excessive hæmorrhage. For five weeks previously she had complained of breathlessness and great fatigue which was attributed to her pregnancy. Fatigue, breathlessness, and pallor increased rapidly after confinement. For a week she had been feverish and complained of a heavy feeling in the left axilla, misty vision, and black specks in front of her eyes.

Condition on Admission.—Temperature, 103° F.; pulse, 130; respirations, 55. Marked pallor, with almost colourless lips and mucous membranes. Tongue coated; teeth good; no oral sepsis. Abdomen: A tender spot opposite the right ninth costal cartilage. Liver just palpable; spleen easily palpable; right kidney easily palpable and rather tender. Heart: Area of cardiac dullness not increased; first sound poor in all areas, and accompanied by soft systolic murmur with maximum intensity at the base of the heart. Blood pressure 116. A provisional diagnosis of infective endocarditis was made.

After admission the patient vomited occasionally for three days; on the fourth day the temperature fell to normal. The following investigations were carried out.

Blood-count.—Red cells, 1,870,000; hæmoglobin, 28 per cent.; colour-index, 0·8. White cells, 2600; polymorphonuclears, 68 per cent. Anisocytosis, poikilocytosis, and diffuse basophile staining were present. Normoblasts, megaloblasts, and myelocytes were seen.

Fractional Test-meal.—Complete achlorhydria.

Urine.—Specific gravity, 1015. No albumin; sugar and acetone a trace. Bile present. Urea, 1·3 per cent.; total nitrogen, 99 per cent. per 100 c.cm.; urea nitrogen, 0·68 mg. per 100 c.cm.; ammonia nitrogen, 0·030 mg. per 100 c.cm.; urea coefficient, 70; ammonia index, 3·1; diastase, 33·3. There was no indication of kidney or liver inefficiency. Van den Bergh's test—positive, delayed, direct and indirect reactions, indicating hæmolysis.

Stool.—A few red blood-cells. No protozoa or excess of streptococci present. Retinoscopy (Mr. Malcolm Hepburn's report): Several large hæmorrhages in both fundi near the disc. No white edges of pigmentation of the hæmorrhages. Vessels healthy, except for slight dilatation of the veins. The hæmorrhages are retinal in origin and due to a blood rather than to a vascular condition.

These findings suggested a severe anæmia of the pernicious type and are similar to those associated with pregnancy as described by Larrabee and C. T. Smith, and the case was treated on similar lines.

Treatment and Progress.

Blood Transfusion.—500 c.cm. of blood were transfused by the citrated method on Sept. 7th, 1926. Two hours later the patient had a severe rigor, but subsequently her condition improved rapidly. Fraise's iron injections—1 c.cm. was given daily. Acid hydrochlor. dil. in 1 drachm doses was given three times a day in lemonade with meals; this dose was not tolerated owing to development of a sore tongue, and 15-minim doses were given; later this was increased to half a drachm.

The general condition improved rapidly, appetite was good. The vision improved gradually, the hæmorrhages were slowly absorbed. Below is a list of blood counts.

Date in 1926.	Red cells.	Hb. %	Colour-index.	White cells.	Remarks.
Aug. 28	1,870,000	28	0·8	2600	On admission.
Sept. 4	2,250,000	34	0·8	2800	
,, 8	2,850,000	50	0·9	5760	Day after tf.
,, 14	3,840,000	69	0·8	7760	7 days after tf.
,, 22	3,880,000	70	0·9	5900	14 days after tf.
Nov. 12	4,440,000	90	0·1	4440	9 weeks after tf.

tf. = transfusion.

In all counts normoblasts were seen; there was also some anisocytosis and poikilocytosis.

Differential Diagnosis.

The differential diagnosis was easily made from infective endocarditis by the falling temperature, the blood picture, and absence of signs of infarcts; from secondary anæmia with toxæmia by the blood-count. The differential diagnosis from Addison's anæmia was very difficult, the blood picture closely resembled that usually found, but the colour-index, though increased, was never so high as is usual in Addison's anæmia; in respects, however, such as the presence of abnormal red cells, the pictures were identical. Also this case never showed oral sepsis.

The patient made an excellent recovery, although the last blood-count showed the presence of abnormal red blood cells and is indistinguishable from a remission of Addison's anæmia.

Conclusions.

The occurrence in this disease of severe anæmia, high colour-index, and achlorhydria associates it with Addison's anæmia. The symptom of diarrhœa with large pale stools and the incidence of the disease in patients residing in hot climates suggests an infection possibly of the same type as sprue. The predisposing factors are undoubtedly achlorhydria associated with general debility, prior to the onset of pregnancy.

Our thanks are due to the pathological staff of the Royal Free Hospital who carried out the pathological investigation.

References.

1. Walter Channing: New England Quarterly Journal of Medicine and Surgery, i., 157.
2. William Osler: Brit. Med. Jour., 1919, i., 1.
3. R. C. Larrabee: Amer. Jour. Med. Sciences, 1925, clxx., 371.
4. C. T. Smith: Jour. Obstet. and Gynæc., 1925, xl., 223.
5. H. Q. Galloupe and D. O'Hara; Boston Med. and Surg. Jour., 1924 cxc., 161.
6. A. Adler: Ztschr. f. Geburtsh. und Gynäk., 1924, lxxxvii., 505.
7. J. Rowland: Jour. Amer. Med. Assoc., 1924, lxxxii., 372.
8. K. Hein: Zentralbl. f. Gynäk., 1923 xlvii., 818.

FOUR CASES OF ANTHRAX TREATED WITH SCLAVO'S SERUM.

BY R. H. BOGGON, M.B., B.S. LOND.,
SURGICAL REGISTRAR, ST. THOMAS'S HOSPITAL.

THESE cases of anthrax are of interest inasmuch as they all were traced to the same source of infection—the two elephants which recently died at the Zoo. All four men were employed in some connexion with the animals.

The diagnosis in each case being made early by the recognition of the *B. anthracis* in smears taken from the lesions, immediate serum treatment was undertaken; no active surgery was required. All the men made uninterrupted recoveries with the exception of the first who developed broncho-pneumonia following on an attack of influenza.

Method of treatment in all cases was subcutaneous injection into the loins or over the glutei of Sclavo's anti-anthrax serum, made at the Tuscan Serum and Vaccine Institute, Siena, and obtained from the London agents, the Jenner Institute for Calf Lymph, Ltd.

FIG. 1.

CASE 1.—Photograph of the lesion taken on the morning of Jan. 3rd.

Details of the cases are as follows:—

CASE 1.—Male, aged 41, a butcher and slaughterman. On Christmas Eve he was working, with bare hands and sleeves rolled up above the elbows, on an elephant which has just died at the Zoo. Seven days later (Dec. 31st) he noticed a small pimple on his right wrist which was not painful but increased a good deal in size. He also felt slight pain in the right axilla but did not feel ill generally. On Jan. 3rd, 1927, he was admitted to St. Thomas's Hospital. Temperature, 97° F.; pulse, 76. There was a dark elevated sore, ¼ in. in diameter, on the radial side of his right wrist (Fig. 1). The centre of the sore was black and depressed, no vesicles were present, and there was very slight surrounding œdema. Some small glands were just palpable in the axilla but these were not tender. Smears taken from the surface of the sore swarmed with *B. anthracis*.

Twenty c.cm. of Sclavo's serum were injected subcutaneously into each flank.

Jan. 4th: The lesion had changed considerably. The centre was blacker, one or two vesicles had appeared around, and there was some œdema extending about 2 in. around the lesion. Temperature, 99°. Thirty c.cm. of serum were given.

5th: Temperature rose to 101° during the night, but dropped again to 99°. Lesion appears much the same but less œdema. Twenty c.cm. of serum given.

6th: Temperature, 97°. The lesion beginning to dry up. Twenty c.cm. serum given.

10th: Temperature, 102·8°; pulse, 100. Patient who had previously been feeling well complained of a sore-throat, a cough, and general aching of the whole of the body. No physical signs in the chest. The anthrax lesion drying up and scabbing over.

In the course of a couple of days the patient showed signs of broncho-pneumonia. The anthrax lesion was completely scabbed over. On Jan. 15th the lesion was scraped and cultures made, but *B. anthracis* was not grown. The sputum was also examined for the organism, but this also was negative. The chest eventually cleared up and the patient was discharged on Feb. 7th, the sore being much smaller with a tough scab over it.

CASE 2.—Male, aged 17, horse-keeper. On Dec. 24th and 28th the patient was employed in carting away the carcasses of two elephants, his arms being bare. On Jan. 2nd, 1927, he noticed a small pimple on the left side of his face which had not got worse. On the 4th he noticed a small pimple on the posterior surface of his forearm. He was admitted to St. Thomas's Hospital on Jan. 5th. Temperature 98·2° F. A small acne pimple was present on the left side of his face; no anthrax bacilli could be found in a smear from this lesion which soon cleared up. On the posterior surface of the middle of his right forearm there was a small red pimple not much bigger than a pin's head, which might easily have been called an acne pimple and passed over. However, it looked peculiar since it stood alone in the middle of a hairless forearm, with an area immediately around the pimple whiter than the rest. Smears showed *B. anthracis* in large numbers. No glands were palpable. Thirty c.cm. of serum were given.

Jan 6th: Spot has slightly increased in size. Temperature 98·2°. Twenty c.cm. of serum given.

7th: Lesion about ½ in. in diameter and of a purple hue, being somewhat darker in the centre. No vesicles present but there was a very slight œdema around. Epitrochlear gland enlarged. Ten c.cm. of serum given.

8th: The condition much the same, except that the lesion was darker in the centre. The condition then gradually dried up and scabbed over. Cultures made from scrapings on Jan. 15th were negative. The patient was discharged on the 17th. By Feb. 9th the area had healed over.

CASE 3.—Male, aged 20, laboratory attendant. This patient states that he assisted at the post-mortem on both the elephants and that his hands and forearms were bare while doing so. Six days after the second post-mortem (that is on Jan. 3rd, 1927) he noticed two small spots on his right forearm. These caused some slight irritation but were not painful. He was admitted to St. Thomas's Hospital on Jan. 5th. Two lesions were present, one over the subcutaneous border of the ulnar about 3 in. from the olecranon, and the other on the middle of the ulnar side of forearm. Both resembled the lesion in Case 2. The area immediately around the spots was much whiter than the rest of the forearm and this made them stand out prominently. No axillary glands were palpable but the epitrochlear gland was enlarged. Forty c.cm. of serum were given.

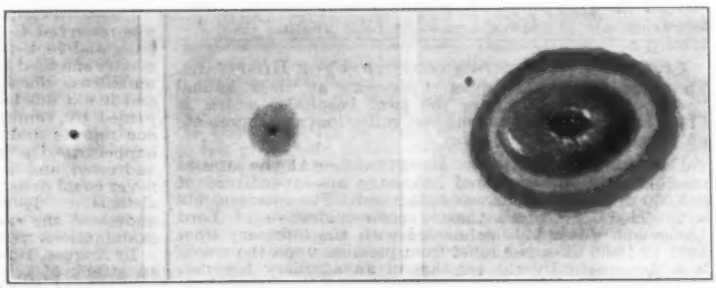
Jan. 6th: Spots were slightly bigger and somewhat purple. Twenty c.cm. serum given.

7th: Ten c.cm. serum given. The spots had now grown to ½ in. in diameter with a black centre. No œdema was present.

8th: The lesions showed signs of drying up. On Jan. 15th cultures from the lesions were negative and the patient was discharged on Jan. 17th. When seen on Feb. 15th both sores had healed.

These two lesions never looked as bad as the one in Case 2, possibly because of the larger initial dose (40 c.cm.) of serum given.

FIG. 2.



Development of an anthrax pustule. Drawings made from Case 2. (Taken, by courtesy of Messrs. J. and A. Churchill, from Romanis and Mitchiner's "Science and Practice of Surgery," to be published by them shortly.)

CASE 4.—Male, aged 27, naturalist. This patient was in contact with first elephant only after it had died, working

with bare arms which became smeared with blood. A week later he noticed an irritable pimple on his left arm; he scratched it and the arm became painful and red. A smear at this stage showed no anthrax bacilli, but did show staphylococci and streptococci. Hot fomentations were given, but the inflammation still spread. On Jan 9th a 24 hours' culture showed *B. anthracis* sporing, with heavy staphylococcal and streptococcal infection. Fifteen c.cm. of serum (Parke, Davis) had been given the day before.

On admission the patient did not look at all fit. Temperature, 104·2° F.; pulse, 106; tongue dirty. A pustule was present on the radial side of the flexor surface of the forearm 3 in. above the wrist. It was about one-third inch in diameter, with a black centre and purple periphery. Around all this was an acute cellulitis and lymphangitis ascending the forearm as far as the elbow. The epitrochlear gland was enlarged and also the axillary glands. A dose of 30 c.cm. of serum was given and hot dressings applied.

Jan. 8th: Temperature, 103·4°; pulse, 96. The lesion appeared much the same. Thirty c.cm. of serum given.

9th: Temperature, 99·4°; pulse, 80. Is much better in himself. The actual lesion is slightly larger but the lymphangitis is less. Twenty c.cm. of serum given.

10th: Ten c.cm. of serum given. The cellulitis and lymphangitis gradually cleared up without suppuration and the pustule gradually scabbed over. No anthrax bacilli were found in a culture on Jan. 15th, and patient was discharged on the 17th.

When he was seen on Feb. 16th the actual site of the pustule had not quite healed.

Comments.

The incubation period of all these cases lay between six to seven days; this shows the necessity of watching contacts over a period in excess of a week.

In the early stages, as shown by Cases 2 and 3, the anthrax pustule bears little resemblance to the lesion described in text-books. It is only when the pustule has become well developed that the classical appearance is produced. (Fig 2.) These lesions could only be distinguished clinically from a septic spot by the history, the dark centre, and the area of whiteness immediately around. It is noteworthy that when bacilli were to be found in smears they were always present in large numbers. The first smear from Case 4 was negative, but here there was a heavy secondary infection.

No surgery was contemplated since all these cases reacted so well to serum. The largest total dosage of serum was given in the first case (110 c.cm.) and the least in the second case (60 c.cm.). The latter, however, flared slightly and perhaps a little more serum was indicated. The fourth case was the worst constitutionally because of the cellulitis, but this soon settled down with rest and heat. All the sores took a long time to heal completely over, although no anthrax bacilli were present after Jan. 15th.

I am much indebted to Mr. C. Max Page and Mr. P. H. Mitchiner for permission to record these cases.

LIVERPOOL STUDENTS' COLLECTION FOR HOSPITALS. The students of Liverpool University at their annual "rag" collected £5200 for the local hospitals, which is £1400 more than the previous best collection, and represents an average of £4 per collector.

PROGRESS OF GLASGOW HOSPITALS.—At the annual meeting of Glasgow Royal Infirmary an expenditure of £65,000 upon extensions was authorised. The enlargements will include a lecture theatre commemorative of Lord Lister who was closely connected with the infirmary from 1861 to 1869. Further relief from pressure upon the wards is to be sought by the erection of an auxiliary hospital. Meanwhile, the out-patient department and the Ophthalmic Institution are described as entirely inadequate.—The annual report of Glasgow Western Infirmary states that the accommodation for the X ray and electrical department is practically the same as when the out-patient department was built 20 years ago, and this part of the work is being carried out with great difficulty. A completely new X ray department is, indeed, needed.—A new wing and an extension of the nurses' home are nearly completed; the entire cost of the works is estimated at £100,000. A new auxiliary hospital is to cost £50,000.—The David Elder Infirmary at Govan, built by the Elder Trustees, will be completed in a few months and handed over, with some £60,000 as the nucleus of an endowment fund, to the Western Infirmary.

Clinical and Laboratory Notes.

A CASE OF MECKEL'S DIVERTICULUM.*

BY C. S. MCEUEN, M.D., C.M. MCGILL.

THE following case shows the nearly disastrous result of my failure to interpret signs and symptoms.

The patient was a girl aged 7½ years. During babyhood she occasionally had attacks of slight fever, with symptoms of intestinal toxæmia, which always cleared up with grey powder. She was constipated and often vomited. I took over the case in 1923, and found the child small (weight 28 lb.), with poor muscular development, thin, looking very frail, and easily tired on exertion. Night sweats were so excessive that her nurse raised the question of enuresis. The girl never wished to eat. Attacks of vomiting occurred three to four times a month, often during meals, but then never until she had eaten a considerable quantity of food, which she used suddenly to vomit, without more than three minutes preceding nausea.

Condition seen at operation.

Constipation was a constant trouble. The stools were often very big in quantity, and of alarmingly large calibre; I should say 1½ to 2 in. in diameter was the rule. She persistently felt tired and often had a temperature without apparent cause. This, however, always yielded to a laxative.

On six to eight occasions during the year 1923–24 the girl was observed to suddenly stop playing, sit very still, turn pale, and look frightened. On being asked what was the matter she used to say she had "her pain" and point to the umbilicus. She said that the pain "was not really a bad one" and it did not last over one minute. It was never accompanied by vomiting. Usually she sat very still for about one minute and then went on playing as if nothing had happened. On many of these occasions she was at once undressed and I examined the abdomen carefully, but I never could detect any abnormality beyond a slight flatulent distension. It is true that by the time the child was undressed she said the pain had gone and, therefore, the examinations were made too late.

In August, 1924, I crossed to Canada with her. She had an attack of acute tonsillitis on board ship which, to the best of her father's memory, was only the second sore-throat that she had ever had. The child then spent three weeks with me in the Laurentian Mountains. One day she complained of tiredness all day and refused food. I found her temperature 103·8° F. A physical examination was negative, except for a slight flatulent distension of the abdomen. She was given in all 1½ drachms of cascara evacuant; her bowels moved in 22 hours with a characteristically enormous stool, when her temperature had fallen to 98·8°, and the next morning she was in her usual health. About ten days later the child suddenly developed an acute intestinal

* Abridged from a report read to the James Mackenzie Institute, St. Andrews, on April 23rd, 1926.

obstruction and was rushed to the Royal Victoria Hospital, Montreal. Dr. F. A. C. Scrimger, who operated, reported :—

"On opening the abdomen a large sac-like portion of the intestine was found, and round the base of this was twisted the cæcum and a long appendix, forming a volvulus, obstructing the small intestine for about one foot on either side of the Meckel's diverticulum" (see figure).

There were a few enlarged mesenteric glands opposite the diverticulum. The pathologist reported that the diverticulum was 6 cm. long and 4 cm. in diameter.

Since operation the stools have no longer been huge ; there has been no abdominal pain or vomiting, no constipation, no disinclination for food, and no rise of temperature without obvious cause. After convalescence the child did, however, suffer from repeated attacks of tonsillitis, and her tonsils were enucleated in February, 1925. The effect of her release, as I interpret it, from chronic intoxication (bowel and/or tonsils) affords a striking picture. Since the symptoms of toxæmia, when they became acute (i.e., temperature 103·8°), were always dispersed at once by laxatives, and since she had only had two sore-throats in her life and her tonsils and cervical glands appeared normal, I feel certain that the origin of the toxæmia was not tonsillar, but was more likely to have been in the alimentary tract.

If in this case more attention had been paid to the character of the stools, and to the fact that periodical pain occurred in a negative abdomen, and if a radiographic examination had been made, the diagnosis might have been reached before the catastrophe of intestinal obstruction.

A CASE OF
LYMPHOSARCOMA OF THE NASO-PHARYNX TREATED WITH RADIUM AND X RAYS.

BY HECTOR A. COLWELL, M.B., M.R.C.P. LOND., D.P.H. OXF.,
DIRECTOR OF THE RADIOLOGICAL DEPARTMENT, KING'S COLLEGE HOSPITAL.

THE following case seems worthy of record as one in which an extensive lymphosarcoma disappeared under radiation therapy, without any operative procedure other than that necessary for the application of radium, and in which no recurrence has occurred during a period of over six and a half years. Lymphoid tissue and lymphosarcoma are, of course, eminently sensitive to X rays and to the radiations from radium, but the tendency of lymphosarcomata to the formation of early and extensive metastases too often militates against a successful issue when treatment is undertaken.

When first seen in September, 1920, the patient was a thin and somewhat cachectic man 34 years of age, who attended the hospital complaining of obstruction in the nose, bleeding from the back of the nose (into the pharynx) of some four weeks' duration, and gradually increasing deafness.

Examination showed hyperplastic rhinitis with enlargement of the posterior extremities of the inferior turbinate bones, while the inferior meatus on both sides was filled with gelatinous mucus. The nasopharynx was occupied by a large bluish-red mass showing evidence of recent hæmorrhage. A further large mass occupied the area behind the posterior pillar of the fauces on the left side and extended to the Eustachian cushion, while a similar, but somewhat smaller, mass was present on the right side. On both sides the glands in the posterior triangle of the neck were enlarged and indurated, the condition being more marked on the left side. A portion of the growth was removed for histological examination and the clinical diagnosis of neoplasm was confirmed by the report that the specimen showed lymphosarcoma.

Treatment and Course.—The condition was so extensive as to be quite inoperable and it was decided to employ radiation therapy as a palliative measure, since the condition of the primary growth, with the coincident glandular involvement, seemed to hold out but little hope of a permanent cure being effected.

Accordingly, on Sept. 23rd, 1920, Mr. C. W. M. Hope inserted two 50 mg. tubes of radium bromide, one into the main naso-pharyngeal neoplasm and the other into the mass on the left side. Both tubes were left *in situ* for six hours. Five days later (Sept. 28th) X ray treatment was commenced, one Sabouraud pastille dose being administered through a 3 mm. aluminium filter to both sides of the neck, the rays being directed upwards and inwards towards the naso-pharyngeal region.

On Oct. 1st the condition had much improved and the symptoms become markedly alleviated, breathing through the nose being comparatively easy, while the deafness was diminished. On Oct. 5th the X ray treatment was repeated and five days later (Oct. 10th) radium was again inserted for six hours, as before, into the already much shrunken growth. At the same time the enlargement and induration of the cervical glands was found to be considerably diminished. On Oct. 19th the postnasal space was—so far as macroscopic evidence was concerned—found to be free of growth.

Ten further applications of X rays were given between Oct. 19th, 1920, and March 29th, 1921. The nasopharynx remained free of growth and the glandular induration and enlargement completely disappeared. There was now no apparent scope for any operative measures, and the patient has been kept under observation from 1921 until the present time. There is now, six and a half years after the initial treatment, no evidence of either primary growth or metastases. The patient appears well and healthy, with only a few telangiectases on the neck due to the X ray treatment.

The patient came to the nose and throat department of King's College Hospital under the care of Mr. Hope, to whose kindness I am indebted for permission to publish the present note and by whom the insertion of the radium was undertaken.

A CASE OF
RUPTURE OF AN ENLARGED MALARIAL SPLEEN.

BY JOHN MACQUEEN, M.B., B.CH. EDIN.,
ASSISTANT PRINCIPAL MEDICAL OFFICER, JERUSALEM.

RUPTURE of a chronically enlarged spleen is not an uncommon accident in countries where malaria is prevalent. The condition is a grave one and the surgeon on opening the abdomen is faced with the removal of the organ. There appears at first to be nothing else to do, for stitching is generally useless, and the bleeding must be controlled by some means. Splenectomy of a malarial spleen is at any time a serious operation. A surgical colleague in Egypt who removes enlarged spleens assured me recently that removal of the enlarged malarial spleen was followed by 100 per cent. mortality. The literature does not put it so high as this, but few surgeons, I should imagine, practise splenectomy to any extent, and it is probable that the experience quoted is, in this respect, as wide as that of most people. The following case seems, therefore, worth reporting.

A male patient, aged 15, was admitted to the Municipal Hospital at Jaffa on Nov. 17th, 1926. He walked from a carriage at the hospital entrance into the reception room.

History.—He stated that he had come from Damascus to Jaffa recently to work with his uncle. On the day of admission, an hour before, this relative had kicked him on the abdomen. He collapsed after the blow and on coming to felt great pain in the abdomen, vomited once, and was brought to the hospital by the police. There was a history of recurrent attacks of fever in Damascus.

Examination.—He was slightly pale and had the rather muddy tint of the sufferer from malaria. He complained of pain in the upper abdomen and walked half bent forward. The pulse-rate was 104 and the temperature 37·5° C. The abdomen moved with respiration but in a forced and unnatural manner, and was arrested by sharp pain on three-quarters inspiration. I received the impression that this arrest was due to a diaphragmatic lesion. There was some tenderness in the left hypochondrium. No movable dullness in the flanks could be demonstrated. There was no evidence of fracture of any of the ribs and the patient did not appear very ill. The spleen could not be palpated.

Rupture of the spleen was considered as a possible diagnosis and he was kept under close observation. On the 18th he was no worse. On the 19th the temperature was 38° C., the pulse-rate had increased to 126, and the abdomen scarcely moved with respiration. I was unable to demonstrate movable dullness in the flanks. At the left base three

was lessened air-entry and a few râles. The patient looked ill. It was decided that laparotomy should be performed.

Operation.—A central incision above the umbilicus revealed blood in the abdomen. Examination of the spleen by the hand—it is not possible to deliver these enlarged spleens through a central incision—showed a tear about half an inch wide running across the lateral surface and continuing round to and across the medial surface. The organ was much enlarged, being about 11 in. long and firmer than normal. The incision was carried across to the left flank with the intention of performing splenectomy.

Recalling, however, the advice of my colleague, and the patient's condition being none too good, I felt that if possible something less radical must be tried. Stitching was attempted, but proved useless. There was evidence at this stage of a rupture of the diaphragm at the upper pole of the spleen. Air was blowing out and in with respiration. It was decided to try packing. This was done by means of five pieces of gauze each about 70 c.cm. long. Three were pushed up on the lateral and two on the medial sides of the organ, the last two respectively in front and behind the hilus. The spleen appeared to be quite tightly and fairly uniformly compressed in this way, and the lacerations were covered. Some blood was swabbed out of the abdomen and the wound closed with through-and-through silkworm-gut sutures except at the lateral corner where the five ends of gauze were left out.

Progress.—After operation the pulse was 122 and weak, and the temperature 38° C. One pint of saline was given subcutaneously and later ¼ gr. of morphine hydrochloride. On the second day the temperature dropped to normal and although the pulse remained rapid the patient did remarkably well. On the third day after operation the gauze was carefully removed and the wound completely closed. On the eighth to eleventh days after operation the temperature rose, the corner of the wound reopened, and pus discharged. Otherwise there were no complications and the patient left hospital 26 days after operation.

Packing for rupture of the spleen is mentioned in the literature, but I had not heard of it before. In publishing this case my object is to obtain, if possible, the experience of others working in countries where malaria prevails. If this line of treatment holds out a fair hope of success it is, I should think, sounder than splenectomy for such cases.

I am extremely indebted to Dr. F. Dejani, of the Municipal Hospital, Jaffa, for his assistance in this case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

AT a meeting of this Section held on Feb. 18th, DR. E. GRAHAM LITTLE in the chair, a discussion took place on the

Treatment of Ringworm by Thallium Epilation.

DR. E. B. DOWLING demonstrated four cases of the series reported in THE LANCET last week (page 389). Three of them were showing active regrowth after complete epilation, the fourth was of later date and had not yet reached total defluvium. This child had complained of pains in the legs a week after taking his dose of thallium acetate, but had completely lost the symptom a few days later. Dr. Dowling thought that these undesirable effects might be diminished or even prevented by keeping the patients in bed whilst epilation is taking place—i.e., for about three weeks.

DR. S. MONCKTON COPEMAN related personal experiences of the use of thallium acetate in the treatment of inoperable carcinoma. The patients' ages, he said, varied from 49 to 78, and the cases could not therefore be fairly compared with those under discussion. A solution of the salt, prepared and tested by Prof. W. E. Dixon of Cambridge, was administered intramuscularly, at first on alternate days in doses of 1 grain then every day, then in doses of 2 gr. on alternate days, and finally in doses of 1 gr. every other day. The total amounts injected during an average period of three weeks varied from 0·778 to 1·361 grammes; thus a proportionately much greater dose had been given than in any of the cases reported by Dr. Dowling. This dose was, however, spread out over three weeks instead of being given in one draught, as the object was to obtain, if possible, a continuous inhibitory effect on the neoplasms. Some improvement had, in fact, been noted. Five of the six cases treated had lost all their scalp hair, two of them even their eyebrows and lashes. The only one who did not suffer in this respect—a man of 49—had developed mental symptoms of a delusional type after only 0·778 g. had been administered, and in his case, therefore, the drug had had to be discontinued. He had subsequently recovered his normal mentality. All the cases had complained of tingling pain in the limbs and a burning sensation in the soles of the feet. In two of them colicky abdominal pains developed, but no diarrhœa. Albuminuria did not occur. One woman, aged 70, who had advanced malignant disease of the breast, had complained of severe substernal pain in addition to the other symptoms cited above. In her case injections were stopped at once after 1·037 g. had been given, but she died three days later from sudden heart failure without developing any other noteworthy symptoms. There were no very definite post-mortem findings, except the secondary deposits, to account for her death. It was to be presumed, therefore, that the thallium was at least a contributory cause.

DR. H. W. BARBER called attention to the interesting similarity of the epilation produced by thallium acetate, X rays, and alopecia areata, in all of which atrophic "exclamation stumps" were to be found. He also remarked on the persistence of a frontal fringe of non-epilated hair in Dr. Dowling's cases, which he regarded as some evidence of a selective affinity for different areas. He agreed with the view expressed by Buschke, Peter, and others, that thallium acetate probably acted by way of the sympathetic nervous system and only indirectly on the hair.

DR. H. C. SEMON said that he had noted very similar toxic phenomena during the intravenous injections of a gold salt (krysolgan), with which he was treating cases of lupus erythematosus. The pains of which his patients had complained were sharp and fleeting, and suggested in their distribution an affection of fibrous sheaths round muscles. He had quite recently discovered that an intravenous injection of 0·6 g. of thiosulphate of soda appeared to exercise a rapid and very effectual control of the symptom, acting in much the same way as he had described for the toxæmias of bismuth and mercury. The atomic weights of gold (197·2), and thallium (204), were closely similar, and it might conceivably be found that the antidotal effects of thiosulphate of soda would be useful in preventing or alleviating undesirable results from the administration of thallium.

MANCHESTER MEDICAL SOCIETY.

AT a meeting of this Society held on Feb. 2nd, DR. A. A. MUMFORD in the chair, DR. R. I. POSTON opened a discussion on

Vertigo.

He dealt first with the occurrence of vertigo in epidemic encephalitis (encephalitis lethargica) where, he said, this symptom often appeared in association with other signs of vestibular disorder. Recalling Gertier's "paralysing vertigo" of 1888, he went on to describe the endemic kubisagari of Japan. The two affections had much in common, and there could be little doubt that they were variants of the same condition. There could be no doubt that they were both due to an infective encephalitis, and he suggested that as kubisagari had occurred in Japan up to 1912, it was possible that it was responsible, or that undiagnosed cases of Gertier's disease in Europe were responsible, for the pandemic of the last decade.

An outbreak of encephalitis with vestibular symptoms had been reported in Strasbourg in 1921.

Having dealt with the known pathology of the condition and the results of several experimental workers who had actually found vestibular lesions in rabbits, Dr. Poston gave a brief description of six cases of encephalitis which had come under his own care. With Mr. F. H. Diggle's help the vestibular reaction of these cases had been determined and abnormal induced nystagmus had been found in three. In a case in which there was complete external ophthalmoplegia (seen through the kindness of Prof. A. J. Hall, of Sheffield) it had been found that simple syringing of the ears with cold water not only relieved ptosis, but enabled the patient to move his eyeballs in every direction and relieved the diplopia of which he complained. He described another case of Prof. Hall's which showed "spasmodic cramp of the upward glance," and in which change of position changed the direction, but not the character of the phenomenon.

Discussing the diagnosis of vestibular encephalitis, Dr. Poston urged the importance of first excluding cerebro-spinal syphilis, aural disease, and intracranial lesions. He pointed out that in cases of epidemic encephalitis with gross signs of cerebellar involvement it had been found at autopsy that the cerebellum was normal. Nystagmus might suggest disseminated sclerosis unless definite and incontestible signs of Parkinsonism were present. The following triad was suggested as offering clinical evidence of disordered vestibular function in the absence of aural disease: disorders of equilibration (e.g., vertigo), spontaneous nystagmus, and abnormal induced nystagmus or abnormal Babinski-Weill reactions.

Dr. Poston suggested a classification of epidemic encephalitis as follows: (1) vestibular syndrome; (2) juxta-vestibular syndrome with signs pointing to involvement of structures adjacent to or connected with the vestibular nucleus, such as oculomotor symptoms, neuralgia, facial paralysis, sialorrhœa, disorders of respiration and pulse, or dysphagia; (3) pallidal syndrome—e.g., tremor and rigidity; (4) striate syndrome—e.g., tremor and myoclonus. Pyrexia and lethargy were the only common symptoms not included in such a classification. In conclusion, he stated that the vestibular syndrome in epidemic encephalitis might occur alone or with such symptoms as those already mentioned; it might occur at the onset, during the acute stage of the disease, or it might persist as a residuum. Interference with vestibular function might account for many of the oculomotor phenomena of the disease, if not for all of them.

Mr. F. H. DIGGLE, after briefly referring to the fact that vertigo was only one manifestation of a disturbance of the vestibular apparatus, pointed out that by artificial stimulation of the peripheral sense-organ in the labyrinth it was possible to produce all the symptoms and signs of such a disturbance—viz., vertigo, nystagmus, reeling gait, and vomiting. He further showed that by a close study of such induced symptoms it was possible not only to test the integrity of the peripheral end-organ, the labyrinth, but also, in a few cases, to locate a lesion in other parts of the vestibular nervous arc. Vertigo, he said, might be produced by a lesion in the labyrinth, by a lesion in its intracranial and spinal connexions, or by ocular lesions. Vertigo arising in acute inflammatory conditions of the middle ear was usually relieved by efficient paracentesis tympani. He drew attention, however, to the prevalence and seriousness of vertigo in acute exacerbations in chronic suppuration in the ear. The danger lay in the fact that translabyrinthine infection was the commonest precursor of fatal meningitis, and the warning signal of vertigo should not be neglected.

Discussing non-suppurative labyrinthine lesions, Mr. Diggle referred to the difficulty arising from the want of pathological knowledge. Vertigo might be due to abnormal pressure of the intralabyrinthine fluids, to irregularities in the vascularity of the organ, or to the effects of toxins upon the nerve end-organ. He thought that vertigo associated with impacted ceruminous plugs, intermittent Eustachian obstruction, and occasionally hydrops of the middle ear could be explained by abnormal intralabyrinthine pressure. Increased pressure of cerebro-spinal fluid might directly raise intralabyrinthine pressure and so produce vertigo, though often cerebral anæmia could not be excluded. Relief occasionally followed lumbar puncture, and a few cases had been recorded by Aboulker and Colledge in which relief had followed the operation of subtentorial decompression. In dismissing intralabyrinthine pressure Mr. Diggle mentioned cases recorded by Mollison of relief to vertigo after trephining the external semicircular canal.

In considering vascular lesions affecting the labyrinth, Mr. Diggle drew attention to the fact that many patients on examination presented a normal inner ear. Massive hæmorrhage as a cause of the Ménière's syndrome was, he thought, infrequent, though it could not be denied that there were sometimes small leakages from atheromatous vessels. Other remote lesions, apart from intralabyrinthine hæmorrhage—such as arterio-sclerosis, abnormal blood pressure, certain anæmias, metabolic disorders, and toxins—might be responsible for Ménière's syndrome. Was vertigo in such cases due to effusion into the labyrinth, to atheromatous disease of the vessels, or to toxic neuritis? Mr. Diggle pointed to the analogy in the eye—namely, tobacco amblyopia, retinal hæmorrhages in nephritis, and retinal detachments from effusion—and drew attention to the toxæmic conditions responsible for vertigo and to the frequent association of vertigo with nicotine poisoning and with nasal sinus suppuration. He considered that occult sepsis was a potent factor. In discussing treatment he urged that no operative ablation of the labyrinth should be undertaken until all other measures had failed, and then only on a labyrinth functionally inactive.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

THE annual meeting of this Society was held at Manchester on Jan. 28th.

Dr. W. R. ADDIS read a paper on a

New Method of Inducing Labour.

The method, he said, consisted in the intramuscular injection of extract of ovarian residue (without corpus luteum) prepared by Parke Davis and Co. The amount given was 1 c.cm. of the extract, and this was injected into the pectoralis major muscle, where it formed the anterior border of the axilla. At first the contractions of the uterus had to be recognised by palpation as the onset of labour was painless. The dose was repeated when the contractions began to diminish in intensity and frequency. The average time in which this occurred was about three hours. After the second injection a dose of one ounce of castor oil was given by mouth. Dr. Addis had employed this method in 22 cases at stages of pregnancy varying from 36 weeks to a week post-mature. He had come to the conclusion that it was practically infallible as a method of induction of labour. Only in the first case had the method been a partial failure. With this form of induction the labour induced was almost painless throughout the first and beginning of the second stage, and pains were really only experienced when the presenting part caused bulging of the perineum.

Dr. J. W. BURNS (Liverpool) showed a specimen of an

Unusual Uterine Tumour.

The patient was a woman, aged 39, whose menstrual history was not abnormal until 18 months before she came under observation, when the loss began to increase. For the past month there had been more or less constant bleeding, and she complained of weakness. There were no symptoms arising from either the bladder or rectum.

On *examination* a smooth, hard tumour could be felt in the lower abdomen reaching almost to a point midway between the symphysis pubis and the umbilicus. Bimanually the cervix was found to be drawn up behind the pubes and the

uterus was enlarged, hard, smooth, and freely mobile. There was no swelling of the appendages. A diagnosis of fibroid was made.

At *operation*, on the peritoneum being opened some free dark blood was seen. The uterus was symmetrically enlarged by what was thought to be a fibroid undergoing some degeneration. Portions of the sigmoid and the ileum were adherent to the upper surface of the tumour; they were liberated with difficulty and a subtotal hysterectomy was done with removal of both tubes and ovaries. The patient made a very rapid recovery.

Pathological Condition.—The uterus, after hardening, measured 4 × 4 × 4½ in., and was symmetrically enlarged; the wall of the fundus was 2 in. thick. The cut surface was fibrous and numerous small cavities were scattered throughout. Many of these cavities were subperitoneal and some of them contained dark blood. On the upper and posterior surface was a roughened area where the intestines were adherent. There was one small fibroid in the posterior wall of the fundus, and the endometrium appeared thickened and ragged. Both tubes were small and appeared normal. The ovaries were slightly enlarged and contained several cysts which were filled with a clear straw-coloured fluid. Attached to the wall of two of these cysts was some old blood-clot. Microscopical section showed in the endometrium numerous glands with regular and single-layered epithelium. The stroma was relatively scanty, and there was no evidence of inflammatory reaction. The endometrium seemed to be spreading deeply into the muscular wall. Sections of the uterine wall showed slight increase of fibrous tissue, and all sections showed the uterine wall to be infiltrated with islands of tissue indistinguishable from the endometrium. Some of the gland spaces were filled with blood, especially those near the peritoneal surface. Sections of the ovaries gave no evidence of endometrioma and no lutein tissue was to be seen.

In most of the specimens of diffuse adenomyoma which had been reported, said Dr. Burns, the adenomyomatous condition had been described as a tumour or tumours localised to some portion of the uterine wall. In this specimen the whole uterine wall appeared to be permeated with the endometrial tissue, and he suggested that this was a true endometriomatosis.

Prof. MILES PHILLIPS (Sheffield) asked if the condition was associated with pain, if there was definite evidence of downgrowth from the surface of the endometrium, and if any communication could be made out between any of the spaces and the cavity of uterus.

Dr. BURNS replied that there was no pain and no microscopical evidence of downgrowths of endometrium.

Dr. LEITH MURRAY (Liverpool) described a case of

Suppuration in a Pseudomucinous Cyst.

The one now recorded, he said, was the only case of suppuration that he had seen in a consecutive series of 115 pseudomucinous cysts. The rarity of the complication was interesting in view of the fact that fluid from such cysts had been, in the past at least, recommended for use in certain culture media.

A woman, aged 34, was admitted to hospital in March, 1926, with a history of swelling of the abdomen since the birth of her second child seven months previously; there had been a more rapid development in the two months preceding her admission, but pain had been completely absent.

On *examination* the patient was obviously in a condition approximating to the typhoid state; she had a dry, furred tongue, dilated pupils, and a temperature ranging from 100°–103° F. As her pulse-rate was 90 to 100 it was thought inadvisable to operate until a Widal reaction had been taken; this proved negative for typhoid and paratyphoid A and B. A blood-count showed 16,875 leucocytes per c.mm. There was a slight trace of albumin in the urine and a moderate amount of pus. The abdomen showed a tense cystic swelling reaching to midway between the umbilicus and the ensiform cartilage; it was not in the least tender and the abdominal wall moved freely over it.

Operation.—Although it appeared unlikely that a cyst which was mobile and not at all tender was the cause of so much general upset, it was finally decided to operate. A cyst weighing 9 lb. 6 oz. was removed through a vertical incision. There was hardly any ascites and only one small (¼ in.) adhesion to the small intestine. While this piece of gut was being separated there was a slight leakage of purulent material. A dab was promptly placed over the spot, the cyst was delivered entire as rapidly as possible, and the abdomen was completely closed.

The patient's temperature was normal next day, and remained so during an uninterrupted convalescence. The improvement in her appearance was dramatically rapid.

The *specimen* showed a typical pseudomucinous cyst of the right ovary with one large loculus containing more than a pint of creamy pus approaching the surface at the point where the intestine had been adherent; the rest of the cyst appeared to be uninfected. The contrast between the large purulent loculus and the clear pseudomucin in the smaller loculi was very marked. There was no twist of the pedicle. Cultures, both aerobic and anaerobic, proved sterile after 48 hours, nor were any bacteria observed in direct films of the pus. Pseudomucin was present both in the pus and in the non-infected loculi, and the microscopical structure was as usual, except around the abscess cavity where only traces of epithelium were observed and round-celled deposit was intense.

The interest of the case, said Dr. Murray, lay in the history of normal labour and in the very small size of the intestinal adhesion. Bland-Sutton[1] had observed that it seemed somewhat difficult to understand how ovarian cysts could become inflamed, enclosed as they were in air-tight cavities, and having no communication with other organs. He considered the principal sources of infection to be the Fallopian tubes, the intestines, the appendix, and "tapping." To these must be added,[2] as was proved by several cases of typhoid infection of ovarian cysts, infection by the blood stream in systemic diseases of infective origin. Pfannensteil[3] expressed the opinion that infection of an ovarian cyst was usually derived from the tube or intestine—the latter almost exclusively when the cyst was adherent to bowel or even near it if the bowel was injured or damaged from any cause.

A discussion of the case followed in which the PRESIDENT, Prof. PHILLIPS, and Prof. HENRY BRIGGS (Liverpool) took part.

Dr. N. E. EDWARDS (Manchester) described a case of

Rupture of the Uterus.

A woman, aged 36, had had four previous labours—first, instrumental; second, breech; third, instrumental; and fourth, normal delivery three years ago. The pelvis was slightly contracted and of rachitic flat type.

Labour pains began at 5 A.M. on Sept. 30th. Membranes ruptured at 11 A.M., and the doctor was then of opinion that the breech presented. Pains increased until 4 P.M.—11 hours after onset—when they suddenly ceased, being replaced by continuous pains in abdomen, back, and right shoulder, associated with vaginal hæmorrhage. The patient was admitted to hospital with moderate collapse, a temperature of 97·4° F., and a pulse-rate of 120; she had a trace of albuminuria. Abdominal examination revealed the fœtus lying transversely with its head in the mother's right flank free in peritoneal cavity. The contracted uterus was felt lying over to the left side. No presenting part was to be felt on vaginal examination.

Dr. Brentnall opened the abdomen and removed from the peritoneal cavity a female fœtus (9½ lb.), with its placenta. In the lower segment of the uterus there was a complete transverse rupture which began just in front of the right uterine artery and ended behind the left uterine artery, which was severed. Supravaginal hysterectomy was performed at the level of the rupture, a drainage-tube was put in the pouch of Douglas, and intravenous saline was given. The patient recovered after somewhat stormy convalescence.

Discussing the cause of the rupture, Dr. Edwards pointed out that there had been no interference by doctor or midwife. He attributed the accident to repeated childbearing at short intervals, associated probably with some injuries to the lower uterine segment by instruments, these having given rise to muscular atrophy and fibrosis. One of these weak spots had given under the strain caused by the vigorous attempts of the uterus to expel a large child through a relatively small pelvis. The presentation might have been a breech with extended legs. It must also be considered what part had been played by toxæmia, as evidenced by albuminuria.

Dr. J. W. A. HUNTER described

An Unusual Case of Local Peritonitis following Ectopic Gestation.

History.—The patient was a woman of 34. On Dec. 17th her doctor was called on account of sudden acute abdominal

[1] Bland-Sutton: Diseases of the Ovaries and Tubes.
[2] Taylor: Typhoid Infection of Ovarian Cysts, Journal Obst. and Gyn. Brit. Emp., 1907, xii., 367.
[3] Pfannensteil: Quoted by Tayor vide supra.

pain with vomiting and slight bleeding from the vagina. Some slight fullness was felt in the pouch of Douglas, which was tender on pressure; this was attributed to a retroverted gravid uterus. The temperature was normal, and the pulse-rate 90. She admitted being 14 days over her time.

On the following day she was much better and went about her daily routine, but on the third day there was a recurrence of abdominal pain, and an increase in pallor, and the pulse-rate rose to 100. On the fourth day she was still doing her work and her condition was unchanged.

On the morning of the fifth day her symptoms rapidly became more severe. Her doctor was called in and found her complaining of still greater abdominal pain. On examination the abdomen was more tender than before, the pulse-rate was 110, and for the first time the temperature rose above normal and was 100° F. In the evening she was even worse; the abdomen was distended, very tender and rather rigid. The temperature had risen to 102°, the pulse-rate was 130, and on examination the doctor noticed, for the first time, a profuse and very foul-smelling vaginal discharge. She was then sent into St. Mary's Hospital.

On admission the patient was extremely pale and rather collapsed. The tongue was dry and brown, and there was sordes on the lips. The temperature was 104°, and pulse-rate 124. The abdomen was distended and very tender, especially in the lower part, and percussion showed the presence of free fluid in the flanks. A foul and dirty brownish discharge was coming from the vulva, and vaginal examination revealed signs of early pregnancy with fullness and tenderness in all the fornices. In both posterolateral fornices tender adherent swellings were felt, similar to those usually palpable in acute salpingitis, and giving the impression of acute adnexal inflammation. A diagnosis of pelvic peritonitis complicating early pregnancy was made, and laparotomy was decided upon as the infection appeared to be spreading to the upper part of the peritoneal cavity.

Operation (Dec. 22nd).—A small mid-line incision was made above the pubes. It was difficult to recognise the peritoneum, for when it was reached dark-brown fluid and bubbles of gas could be seen through it, so that there was some hesitation about opening it because it resembled bowel. On incising the peritoneum there was an escape of gas, followed by a large quantity of dark-brown, very foul-smelling fluid which had been distributed throughout the peritoneal cavity. In this fluid were some pieces of disintegrating blood-clot. When a hand was inserted into the pelvis the pouch of Douglas was felt to be obliterated by adhesions, and both appendages were bound down; so a tube was put down into the pelvis and the abdomen closed, no further treatment being thought advisable.

On the following day the temperature came down to normal but rose to 102° in the evening; it again became normal on the third day, the patient being very much better. On the fourth day the temperature rose to 100° and she was not so well. Thereafter improvement ceased; the abdomen became hard and distended with obvious general peritonitis, and on the ninth day after operation she died.

Post-mortem examination revealed a large purulent subphrenic abscess. There was a small tubal gestation in the isthmic portion of the right tube. Obviously this ruptured at the time when the symptoms began, and a hæmatocele formed in the pouch of Douglas. Five days later this became infected, as shown by the sudden onset of temperature and signs of pelvic peritonitis.

The interesting questions in this case, said Dr. Hunter were, Was the infection due to a gas-forming organism, or was the gas, present in the peritoneal cavity, due to septic disintegration of blood-clot? Probably to the latter, for after operation there was no further sign of gas-formation and at autopsy the subphrenic abscess was of the ordinary pyogenic variety. Secondly, what had been the starting-point of the infection? Was it from the bowel or from the vagina? Probably it was vaginal, otherwise it was difficult to explain the profuse and foul vaginal discharge. No evidence of interference could be obtained, though this was suspected, but the patient had admitted that she knew herself to be pregnant, and was known to have brought on an abortion herself about a year ago.

Prof. D. DOUGAL said that he thought the gas was due to infection of the blood-clot. He had seen a case of infection by *Bacillus aerogenes capsulatus* in which the uterus and the fœtus therein showed gas spaces and grew cultures of this organism.

Miss FRANCES IVENS (Liverpool) showed a specimen of squamous carcinoma of the clitoris, associated with a cyst of the broad ligament, in a woman of 84, and a specimen of mixed-celled sarcoma of the ovary with pelvic tuberculosis.

Reviews and Notices of Books.

ACUTE SEPTIC CONDITIONS IN SURGERY.

Die Akuten Eitrigen Infektionen in der Chirurgie und ihre Behandlung. By Dr. ARTHUR BUZELLO, Privat docent and Assistant to the Surgical Clinic at Greifswald. Berlin: Urban and Schwarzenberg. 1926. Illustrated. Pp. 495. M.30.

IT is to be supposed that this unusual classification of surgical diseases was adopted because so often septic cases are segregated in hospitals. It is of doubtful advantage to group clinical cases according to their bacterial origin, but Dr. Buzello has performed his self-imposed task very creditably. The volume is divided into a general part in which the behaviour of the body to infection, the natural history of septic organisms and methods of treatment such as vaccine therapy, auto-pyotherapy,

A special part follows which makes interesting reading, since the methods practised in Greifswald can be contrasted with those used in this country. Thus we find that he recommends the excision of facial carbuncles in order to save life and to lessen subsequent scarring; he also recommends the excision of ordinary carbuncles, without subsequent suture. Dr. Buzello has obtained good results by the injection of the patient's own blood into the tissues surrounding a carbuncle. In the section on panaritium he recommends what amounts to excision of small subcutaneous whitlows. Healing of the frequent horseshoe incision of the terminal phalanx can be promoted by strapping the flap back into place when granulations appear—a useful hint. When the tendon is lost in a finger, function of the digit will be lost also, and the author thinks early amputation of such useless fingers is advisable and rational, but never should such a course be followed when the thumb is the digit infected. Bier's treatment he finds useful in septic joints, but always combined with frequent aspiration, since it is no good to persist when frank pus has formed. In mildly infected joints he washes out the cavity with 5 per cent. carbolic or injects 20 per cent. iodoform in glycerine. There is no mention of Willem's mobilisation treatment for a septic knee-joint. As a prophylactic measure against infection after operating upon a knee-joint for some internal disorder, a plaster bandage is always applied. In septic peritonitis irrigation is still used in early stages. Opium is said never to be given in peritonitis, though a few pages later morphine is recommended for vomiting in this condition. Every effort is directed to getting the bowels to act and a hot-air bath is said to be very effective for this purpose. Breathing exercises after septic abdominal operations seem to be a good recommendation. Actinomycosis is included amongst the septic diseases, as also is tetanus.

The last section of the book describes the general septi diseases, septicæmia, pyæmia, and sapræmia, with methods of investigation and treatment. The weakness of the method of classification adopted in this book is exemplified by the fact that such important septic surgical conditions as lateral sinus thrombosis, frontal sinus suppuration, and brain abscess are not described.

ELECTROTHERMIC METHODS IN THE TREATMENT OF NEOPLASTIC DISEASE.

By J. DOUGLAS MORGAN, B.A., M.D., Assistant Radiologist, Philadelphia General Hospital. Philadelphia: F. A. Davis Company. 1926. Pp. 172. 10*s.* 6*d.*

THE electrothermic methods of surgery are those in which high-frequency currents are used to generate heat within the body for the purpose of destroying or excising morbid tissue. There are various ways of utilising the currents for these purposes. The author devotes most space to the mode of treatment

known as electrodesiccation. In this the heat is insufficient to cause actual coagulation of tissue, but is able to deprive it of water. The author describes the principles of the method and the way of performing the operation. He points out the beneficial results which can be obtained in the treatment of superficial malignant growths and benign tumours and other forms of morbid tissue. According to the description the extent of desiccation is within full control of the operator. Dr. Morgan says that the results following the process are so perfect that a carcinoma involving the edge of an eyelid, the inner canthus of an eye, the tonsils or the larynx may be completely destroyed without impairing either the appearance or function of the part involved. He also gives an account, under the heading "electrocoagulation," of the method known to European workers as "diathermic coagulation" or "surgical diathermy." The technique, and the results which may be expected in the treatment of malignant tumours in certain regions are described. There is also a brief reference to the use of high-frequency currents for cutting tissue and excising tumours. The book contains chapters on first principles and the meaning of terms, on the chemical and physical properties of currents, on apparatus, and on the history of surgical diathermy. The author deplores the abundance of terms employed by different writers for the description of the same treatment and refrains from the temptation of adding to the list.

It is likely that the English reader will be most interested in the description of electrodesiccation. This form of treatment seems to be popular in America, but it has not yet been adopted by workers in this country. There is no precise information which will enable those who have not practised the method to ascertain when the tissue is desiccated. Does it change its appearance, colour, or consistency? The monograph forms a clear introduction for those who desire to learn the important part played by electrothermic methods in surgery at the present day. The pages are well printed in large type and a number of helpful illustrations are included.

PSYCHOTHERAPY IN THE INSANE.

Selbstschilderungen der Verwirrtheit. Die Oneiroide Erlebnisform. By Privatdozent Dr. W. MAYER-GROSS, Assistant Physician to the Psychiatric Clinic, Heidelberg. Berlin: Julius Springer. Pp. 296. M. 219.

THIS monograph, one of the voluminous Foerster-Wilmanns series on neurology and psychiatry, deals with the most difficult and debatable part of all psychological medicine, which is to evolve a system of diagnostics and therapeutics from what many are content to call the patient's "ravings." Freud, Jung, and Adler and their disciples have based systems of diagnosis and cure on the analysis of their patients' minds, and although they are opposed by considerable scepticism there is good evidence that their methods succeed in relieving many neurotic conditions. They, however, are dealing with what the world calls "sane" patients, who, for all their ailments, know what they are talking about and can coöperate in the process. Dr. Mayer-Gross, a psychiatrist of great repute, has set himself the infinitely more difficult task of reading a meaning into the phantasies, delusions, and ramblings of patients suffering from advanced functional psychoses. He sees in these distorted fragments of mental expression the causes that have distorted the mind, and sometimes the means that will counteract them. He is not advocating a system based on speculation but one that he is testing every day in his own clinic. It is not intended to replace the existing means but to supplement them, and no one will deny that they need supplementing. His book consists of the verbatim records of the accounts of their subjective experiences given by eight patients suffering from various psychoses of biogenic origin together with the author's analysis, comments, and deductions. His section on the acute hallucinatory psychosis is especially interesting (p. 170), for his results suggest to him several new theories of the pathology of this condition. Not many people in England will read this book, but its work will be done if it inspires an English psychiatrist to publish the results of his own investigations along similar lines.

THE ENLARGED PROSTATE.

By KENNETH M. WALKER, F.R.C.S., M.A., M.B., B.C., Lecturer in Venereal Diseases, St. Bartholomew's Hospital; Surgeon with Charge of Genito-Urinary Department, Royal Northern Hospital; Surgeon to St. Paul's Hospital. London: Oxford University Press, Humphrey Milford. 1927. Pp. 193. 12*s.* 6*d.*

THIS monograph summarises recent work upon the pathology and treatment of a very common affection. The scope and value of radium, X rays, or diathermy are clearly set out, while older methods are clearly described. Particularly interesting are the chapters upon prostatism without enlargement and per-urethral methods of operating. The author's own experience shows just what can be effected by these methods and when they are indicated. The general account of prostatectomy is good. Mr. Kenneth Walker does not seem to practise perineal prostatectomy, but he sums up very fairly (p. 139) the advantages and drawbacks of each method. It is a little difficult for the reader to find advice as to what preliminary treatment he should give and what examinations should be made in cases where operation is contemplated—such examinations, for instance, as the estimation of blood pressure and cardiac efficiency, and determination of the hæmoglobin content of the blood, all of which are potent factors influencing the outcome of the operation. Most of this information is to be found in the book, but it is not collected in one place conveniently for reference. This is the sole criticism we have to make of an otherwise excellent account of the enlarged prostate.

TUBERCULOUS LESIONS OF THE EYE.

Die Tuberkulösen Erkrankungen des Auges. By Dr. RUDOLF BERGMEISTER, Privatdozent for Ophthalmology in the University of Vienna. Berlin: S. Karger. 1927. Pp. 143. M.6.60.

THE main purpose of this book appears to be to put the specific treatment of tuberculous diseases of the eye on a sound theoretical basis and to advocate its more general employment. The critic may object that too exclusive attention is paid to this method of treatment and especially that the most recent method recommended for these cases—ultra-violet radiation—receives but scanty notice. Moreover, it seems to be taken for granted that so-called scrofulous or phlyctenular diseases are actually the result of a tuberculous toxin in subjects rendered supersensitive by a previous and, perhaps, unnoticed attack of tubercle. Though this theory may be found to be true of some cases, the general consensus of opinion is that it does not apply to the majority. The author quotes a large number of German-writing authorities; the absence of an index detracts from the convenience of his book and the entire absence of illustrations makes it hard reading for the British reader. It contains, however, some interesting and important matter. Original observations are few but include the occurrence of a corneal necrosis in a case of lupus. As an unusual example of reaction to tuberculin cases he has noted the wandering of pigment from the periphery towards the centre in foci of choroiditis. The shrinking of the sclera in cases of scleritis treated with old tuberculin is given as another example of focal reaction to be avoided. The form in which the author recommends the treatment is the bacillus emulsion in small doses systematically increased during a prolonged period.

THE SEPTIC PROBLEM.

A Solution of the Septic Problem and a New Theory of Immunity. By D. MONTGOMERIE PATON, L.R.C.P., L.R.C.S. Edin. London: Baillière, Tindall and Cox. 1927. Pp. 204. 7*s.* 6*d.*

THE subject matter behind this ambitious title is neither logical, exact, nor plausible. As far as can be made out the author believes that antibodies are of two sorts: the one specific and only acting when free in the lymphatic system, and the other non-specific, acting when present in the blood. He attributes the production of the former, which in his view may be represented by diphtheria antitoxin, to the lymph glands, and proceeding from this hypothesis states that on this account it is only capable of exerting its specific influence in the lymphatic system, which explains its uselessness when given orally; as a corollary he believes that other, non-specific, antibodies can be absorbed from the digestive tract and exert their effect in the blood. A portion of the book is devoted to such theoretical considerations, and abounds with statements of the type that "The endocrine defence lies in an increased potency and in a hormone balance specific for the antigen present," and "diphtheria toxin, having a proteolytic action like the streptococcus, evokes a hormone and antitryptic balance which is capable of a definitely increased tissue resistance to all three organisms." If any definite idea lies behind this phraseology it is effectively obscured. The outcome of the book is that great therapeutic virtues are claimed for diphtheria antitoxin, administered by the mouth and subcutaneously, in a large range of disorders from varicose ulcers to lobar pneumonia.

SAMUEL HAHNEMANN: HIS LIFE AND WORK.

By RICHARD HAELH, M.D. Translated from the German by Mrs. MARIE L. WHEELER and Mr. W. H. R. GRUNDY, B.A. London: Homœopathic Publishing Co. 1926. Vol. I., pp. 443; Vol. II., pp. 514. £3 3*s.*

THOSE who can spare the time and the labour to read through the two volumes containing nearly 1000 pages of closely set type will be more astonished than anything else at the remarkable mixture of common sense and credulity, of sound medical practice and of quackery, and of scientific insight and unscientific absurdities which characterise Hahnemann's career. He was one of the first to recommend and to put in practice a sensible and kindly treatment of lunatics; he was a pioneer in public health, in the proper way in which to bring up children, and in sanitation. He fought against excessive blood-letting and also against the absurd polypharmacy in vogue at the end of the eighteenth century and for some years later. And yet he could write such a childish tirade against the use of coffee as we find upon page 60 of Vol. II. and evolve all the Hahnemannian theories and practices of psora, and provings and decillion dilutions. Dr. Haelh has collected with fearful care every conceivable scrap of information about his hero. There are innumerable letters from and to Hahnemann, most of them dealing with trivialities, such as that Hahnemann used a steel pen. Lists of objects belonging to Hahnemann and his relations are all solemnly put down—e.g., "Two red lacquered spittoons; five iron dog chains; four dogs' drinking troughs; one mouth harmonium with case." The book would have made better reading had its bulk been curtailed.

MENTALITY OF SUBTHYROIDIC CHILDREN.

Geistige Entwicklung Hypothyroidischer Kinder bei Spezifischer Behandlung. By Dr. W. KORNFELD. Berlin: S. Karger. 1926. Pp. 38. M.2.70.

THIS monograph consists of an account of the mental progress of 15 subthyroidic children, mostly cretins, while undergoing specific treatment, with an extremely judicial and thoughtful elaboration of the results disclosed. The perversity of parents provided the author with opportunities of observing the effect of temporary cessation of treatment, which adds to the value of the records. Detailed results of mental testing are tabulated, and Dr. Kornfeld points out that the mental retardation of cretins has some characteristics which separate it from that of primary aments, the functions of attention and initiative being impaired beyond all others. He stresses the fact that organotherapy does not in itself produce true mental improvement, comparable to the physical improvement which takes place; it renders the brain susceptible to improvement, but this can only be achieved by active educative measures. The defect of the customary method of dealing with these cases lies in its failure to fulfil these conditions. Patients who had made rapid progress in a special school, and who had been rendered fit for unskilled labour, at the age of 14 or so were passed on to mechanical tasks and no longer actively educated; the result of this was an improvement far below that which can be attained, or sometimes actual deterioration. The subthyroid adolescent requires a definitely longer period of education than the normal one, and unless this is conceded to him the money spent on his welfare by the State does not produce an economic return.

The accounts of the individual cases bring out numerous points of interest, and Dr. Kornfeld may be congratulated on making a really valuable contribution to the study of amentia.

THE BLACK DEATH.

A Chronicle of the Plague. Compiled by JOHANNES NOHL from Contemporary Sources. Translated by C. H. CLARK, Ph.D. London: George Allen and Unwin. 1926. Pp. 284. 12*s.* 6*d.*

THE Plague of London has always fascinated the most superficial of students of history, standing out with the signing of the Magna Charta and the Gunpowder Plot and the beheading of Charles I. as an incident remembered not only by every school-boy but also by his elders. This is not to say that such high lights are always vivid and discrete. A child, whose mind was being racked by the inquisition of a general knowledge paper when asked what he knew of "Habeas Corpus" replied "Habeas Corpus was what you said to the driver of the dead cart in the Great Plague. It means, 'You may take the body.'"

The tradition of the widespread epidemic of 1348 has also been retained for 500 years, and it is curious that there should still be room for researches as to its immediate and remote effects. This book is mainly concerned with the cultural and social aftermath of the scourge. The narrative is drawn almost entirely from contemporary sources, extracts being given verbatim, and hence has a pictorial value which no mere history can possess. On the whole it is a most valuable study of the period, though here and there extraordinary statements show the danger of not verifying references. For instance, on p. 177 is a story about how a man was taken by the Devil to a house in Milan and asked to sell his soul to the fiend, we are told that "the description of the house shows a remarkable similarity with Homer's description of Circe's cave. The terrible and the majestic, the charming and the horrible were standing cheek by jowl." Now Homer distinctly says that Circe lived in a house in a clearing, and that the house was built of polished stone; neither was there anything horrible about the interior. Again, on p. 235, in talking about the Black Death and the Flagellants, the author says: "Their cult was a cult of repentance and as such was intended as a direct imitation of Christ, such as a few centuries later was taught by Thomas à Kempis in his splendid book"; from 1348 to 1420, the generally received date of the De Imitatione, is not even one century. We also doubt whether the statement on p. 208 that

the erotic carvings in some of the French churches are due to the general laxity of morals prevailing during the plague in the fourteenth century is correct, for as a matter of fact some of the carvings in question are as old as the eleventh century. Other faults of detail are a certain indefiniteness about dates and an omission of full references to the source of the quotations given; otherwise the book deserves unqualified praise. A quaint story finds a place of a quack who sold amulets as a preventive. On no account was the amulet to be opened and read before 14 days had elapsed. They were bought in vast quantities and the quack, having raked in much money, departed. At the end of the prescribed period everyone opened his amulet to read the charm, and found nothing but a rude couplet in Italian. The copious bibliography appended to this interesting work will be of great value to those who wish to pursue the subject further, for it contains names, for the most part, unfamiliar.

DEMENTIA RACHITICA.

By Dr. KURT HULDSCHINSKY. Berlin: S. Karger. 1926. Pp. 60. M.2.70.

THIS monograph describes an investigation into the so-called cerebral component of rickets. The first part consists of an account of some of the nervous manifestations of this disease, with an attempt to classify them as "psychic" or "somatic," which leads to some curious results. Tetany is admitted to be somatic, but sweating and spasmus mutans are both classed as psychic, no mention being made of the association of the latter with nystagmus and other objective factors. The results of a series of intelligence tests are given; these do little to justify the title of the work, as they yield no evidence of any mental defect, except a moderate degree of retardation, which occurs *as a result* of rickets. The psychological explanation of "rachitophrenia," by analogy with schizophrenia at a later age, appears far-fetched, and will probably fail to satisfy the majority of clinical observers.

THE BEHAVIOUR OF ANIMALS.

The Natural History of Ants. By RENÉ ANTOINE FERCHAULT DE RÉAUMUR. Translated and annotated by W. M. WHEELER, Professor of Entomology in Harvard University. New York: A. A. Knopf. 1926. With 2 portraits and 2 facsimiles. Pp. 280. 25*s*.

RÉAUMUR was born in 1683 and after a career of amazing industry and versatility died in 1757. He discovered how to make steel, invented a thermometric scale, incubated eggs, artificially studied digestion in vitro, wrote on the effective sealing of museum jars (the paper is translated in the Philosophical Transactions of the Royal Society (1748) of which he was a foreign member), and in one way or another illuminated an extraordinary variety of other subjects. But he is perhaps best known for his great "Mémoires pour servir a l'Histoire des Insectes" of which the six volumes published during his lifetime are enough to place him in the first rank of those who have worked at the life-history and habits of insects. He left materials for further volumes in a more or less coördinate condition, and his treatise on ants has been retrieved from the archives of the Institute by the pious care of Prof. Wheeler. We are given here the original text, a translation, many illuminating and scholarly notes, and, as a preface to the whole, a most interesting account of Réaumur's life and the position he occupied in relation to his contemporaries and to the progress of knowledge before and since. To anyone with a feeling for natural history the book will be a delight. It is so beautifully produced that there is no harm in noting that on p. 36, line 13, a "no" seems to be astray and that the "Annotations" should have had back references to their germane text.

A HANDBOOK FOR SENIOR NURSES AND MIDWIVES.

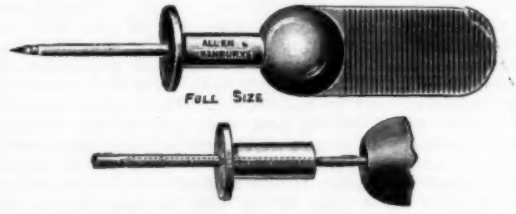
By J. K. WATSON, M.D. Edin. London: Humphrey Milford, Oxford University Press. 1926. Pp. 554. 12*s*. 6*d*.

THE modern nurse is expected by her patients to have some knowledge of such subjects as encephalitis lethargica, insulin, endocrine therapy, and twilight sleep. Unless she is prepared to read medical periodicals it is difficult for her to keep abreast of medical progress, and Dr. Watson, whose previous handbooks for nurses and midwives showed him to be a shrewd writer in this sphere, has therefore brought out a supplementary volume intended principally for the senior nurse, sister, and experienced midwife. The works from which much of the material in this book has been obtained is a guarantee that it is authoritative and up to date. The book is divided into four parts: medical, surgical, pædiatric, obstetrical and gynæcological, and in each section various important subjects are treated in a manner too detailed for the needs of the young probationer, but admirably suited to those of the sister. The author begins with a chapter on preventive medicine, followed by one on the problem of cancer and another on the use of alcohol, subjects very much before the public on which the intelligent nurse is supposed to have some opinion. On controversial matters the author gives both sides fairly; his account of the arguments for and against twilight sleep is particularly good, as is also the description of the method of conducting labour when it is used. The book is well printed, illustrated, and indexed.

New Inventions.

A LIPIODOL TROCAR AND CANNULA.

THE only part of a lipiodol injection into the trachea by the cricothyroid membrane route which presents any difficulty is the insertion of the needle through this membrane. If the needle is sharply pointed it is dangerous because it may lacerate the posterior wall of the trachea when the patient swallows or coughs; if it is bluntly bevelled it is difficult to push through



the membrane, and painful and undesirable pressure may be needed. A trocar and cannula has the advantage that it can be sharp when inserted and blunt when in position. I therefore asked Messrs. Allen and Hanbury to make the instrument shown in the illustrations. The cannula is 2 cm. long and the bore is 1 mm. in diameter. It is made to fit any Record syringe, and does so perfectly and easily, requiring no pressure to keep it in position, and there is no leakage of oil. The shoulder of the trocar must adequately cover the end of the cannula. When tested by pushing the instrument through linen or rubber there should not be the slightest catching of the cannula. So often trocars and cannulas are sent out with glaring defects in this respect, and it is unpardonable. I have now used the instrument for several months and find it perfectly satisfactory. It is easy to handle, and in spite of the small bore the oil flows perfectly if warmed to body heat.

F. G. CHANDLER, M.D. Camb., F.R.C.P. Lond.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 26, 1927.

DISTEMPER AND INFLUENZA.

THE administration of a national fund set aside for the initiation and development of medical research is liable to criticism from every taxpayer who is excited by the recollection of an undiagnosed pain or annoyed by the inconvenience of a recurrent infection. His chief plaint, sometimes, alas, supported by his harassed medical adviser, is that researches into abstruse bacteriological or biochemical problems are subsidised while the nature of common affections such as influenza remains unknown. In the introduction to their Annual Report for 1925–26, which we summarise on another page, the Medical Research Council patiently explain once more the many reasons why it is futile, even were it possible, to attempt to direct research into purely utilitarian channels. It is impossible because the elusive beam of light that some men are able to shed on problems that interest them is likely to be extinguished if they are pressed to turn it on dark places. It is futile because not even the worker himself can guess beforehand whether a given piece of knowledge is destined to have a direct bearing on medical practice. For example, the structure and distribution of the sterols—a group of complex solid alcohols of which cholesterol has the widest distribution in the animal body—has been for many years the subject of intensive research by organic chemists, notably A. WINDAUS in Göttingen, I. M. HEILBRON in Liverpool, and H. J. CHANNON and J. A. GARDNER in London. Quite recently[1] it has been shown by workers in the National Institute for Medical Research that the antirachitic vitamin D is actually formed when certain sterols are exposed to ultra-violet light, and already in our columns last week it was announced that a commercial preparation of ergosterol, believed to be at least 20 times more potent than cod-liver oil in the prevention and treatment of rickets, is available for trial by medical men.

In contrast with this sudden practical application of what seemed to be academic investigations is the way in which progress in the study of common diseases may be hampered by failure to discover an appropriate technique. If the critics of the Medical Research Council took the trouble to study the serial story told in successive annual reports they would see that many beginnings have been made to study apparently simple problems. Each time these have been found to depend on so many unknown factors that they cannot be approached with any hope of success until more is known of the complex processes of metabolism or of infection and immunity. For example, it is now nearly four years since the Field Distemper Fund was inaugurated to facilitate the study of the cause, prevention, and cure of canine distemper. High hopes were entertained of speedy results, for the reasons which prevent the direct study of comparable human diseases—the impossibility of experimental infection on a large scale and of controlled tests of the potency of remedies—do not apply. Moreover, since distemper occurs spontaneously in dogs, its experimental reproduction can be effected by direct contagion as well as by artificial means, and comparison of the course of the disorders produced need leave no doubt as to their identity. Yet, in spite of these facilities, concentrated research has done little as yet but reveal the magnitude of the problem. CARRÉ'S view that distemper is caused by a filter passing virus and not by micro-organisms visible by ordinary methods has been confirmed; but progress has been seriously handicapped by the failure in spite of persistent trials "made with every effort that experience and ingenuity can suggest" to propagate the distemper virus outside the animal body. Ferrets, which are highly susceptible to canine distemper, can be immunised to the infection by means of inoculation with a virus killed or inactivated by formalin, but this weakened virus gives only temporary immunity to dogs, though it appears to modify the course of an attack of the disease subsequently induced by fresh virus. The fact that susceptibility of individual dogs to distemper is highly variable adds to the difficulty of testing the effect of preventive inoculations. It is clear that before any method can be devised to give complete and lasting immunity to dogs, a virus of known and constant potency must be available and dosage must be accurately standardised. Until the virus can be cultivated outside the animal body the inoculation can only be crude and its content of active material uncertain. The Medical Research Council hold out little hope that a practical method of protecting dogs, suitable for general use, will be obtained until the nature of the virus, the right methods for its cultivation, and its laws of behaviour have been ascertained. This pronouncement will be appreciated and endorsed by all who understand the problems at issue. It follows that it is foolish to clamour for official guidance as to the prevention of influenza, the ætiology of which is even more obscure, for it is not yet established whether it is caused by a visible or an ultra-microscopic organism. The Council point out the analogy between distemper in dogs and influenza in man, and suggest that the right weapons for attack upon influenza are perhaps only to be forged in the easier experimental study of the animal maladies nearest akin to it.

The report, as a whole, is a fascinating record of work done at home and abroad, by chemists in laboratories, and practitioners at the bedside. It includes accounts of organised researches subsidised by the Council over a term of years, and notes of temporary facilities or assistance granted in order to bring certain workers together for a short time or to prevent the waste of material during a transition period. The report concludes with a list of 700 men and women named therein, the large majority of whom have received from the Council personal grants or paid assistance. There is a corresponding list of 80 institutions where work is being carried on wholly or partly under its auspices. Nearly all those selected for appointment year by year to the chairs under the medical faculties of our universities are men who have at one time held research grants from the Council, if indeed they do not relinquish these only on obtaining a full-time academic post. It is noteworthy that two of the candidates recently recommended for the signal honour of Fellowship of the Royal Society—Dr. P. P. LAIDLAW and Mr. O. ROSENHEIM—are attached to the National Institute for Medical Research at Hampstead. The Council refer to a present shortage of young men of first rank available for research—a shortage which they attribute to the direct and indirect effects of the war. They are obviously keen to detect every sign of ability and to

[1] O. Rosenheim and T. A. Webster: THE LANCET, Feb. 5th, 1927, p. 306.

let no flicker of bright promise die out for lack of protection. Nobody can press a switch and turn a flood of light into the dark caves of medical ignorance. The function of the Medical Research Council, which they fulfil with fine discrimination tempered with most kindly tolerance, is to see that no one who has flint lacks steel, and that where even a tiny spark is produced tinder shall not be wanting.

THE TESTS FOR DRUNKENNESS.

IN October, 1925, a Committee was appointed by the Council of the British Medical Association to consider and report on the present tests for drunkenness, and to make recommendations as to their improvement. The Committee included the President of the Association, the chairman of its Council and of its Representative Body, and its treasurer; several divisional surgeons of the Metropolitan Police Force, two Metropolitan magistrates, and certain well-known clinicians and scientists like Dr. FARQUHAR BUZZARD, Mr. J. T. J. MORRISON, Mr. E. B. TURNER, and Sir WILLIAM WILLCOX, the chairman being Major-General Sir WILLIAM MACPHERSON, A.M.S. The institution of the inquiry was immediately due to the notoriety given by the press to certain cases where persons had been convicted of drunkenness when in charge of motor-cars. There were here two pronounced waves of feeling: first, that the public must be protected from the gross risks brought about through the reckless driving of motor vehicles, and, second, that the acuteness of this apprehension had led to the sentencing, as drunken, persons whose condition had not been properly tested—in short, there was a view that, in order to ensure the non-escape of the guilty, the innocent had been more than occasionally penalised.

The Committee show by the report that they have considered closely the procedure usually adopted in police-courts for dealing with cases of alleged drunkenness, for they print in an appendix a résumé of what happens in London and in most of the larger towns, and for purposes of comparison describe also the procedure in the Navy and Army, and that in certain foreign countries such as Denmark, France, and the United States of America. A further appendix consists of a memorandum on the particular offences where drunkenness plays a part, a list being thus presented of the circumstances in respect of which a doctor may be asked to express an opinion as to the existence of drunkenness in a particular individual. In the body of the report the Committee suggest that the word "drunk" should always be taken to mean that the person concerned was "so much under the influence of alcohol as to have lost control of his faculties to such an extent as to render him unable to execute safely the occupation on which he was engaged at the material time." Medical practitioners will agree that the adoption of this as a definition would clear away some of the difficulties in certain classes of case. The usual deliberations for establishing the fact that an individual is under the influence of alcohol having been reviewed, the general conclusion is come to that no single test taken by itself justifies a medical practitioner in deciding that the amount of alcohol consumed had caused a person to lose control of his faculties "to such an extent as to render him unable to execute safely the occupation on which he was engaged at the material time." A correct verdict, it is held, can only be arrived at by the consideration of a combination of several tests and observations such as "general demeanour; state of the clothing; appearance of conjunctiva; state of the tongue; smell of the breath; and character of the speech." These manifestations are to be noted in connexion with the manner of walking, turning sharply, sitting down and rising, and making small coördinated movements, while memory of incidents within the previous few hours and estimation of time intervals should be inquired into. It is the sum of the conclusions arrived at after such varied inquiries that may justify or negative the diagnosis of drunkenness.

The pathological conditions are set out which may simulate alcoholic intoxication and so lead to obviously unfair conditions where an inquiry is conducted in a perfunctory manner. Here a warning is given which should hardly be needed by medical men, but which has an extreme importance in law courts especially for the information of juries. The report finds that every single symptom due to the consumption of alcoholic liquor may also be assigned to some other pathological condition. Sir JAMES PURVES-STEWART pointed out in a famous address on acute drunkenness delivered two years ago before the Society for the Study of Inebriety[1] that many of the commoner clinical phenomena employed on tests in the recognition of drunkenness are not in themselves tests for alcoholic poisoning, but rather for cerebral, cerebellar, or ponto-bulbar disorders. And everyone knows how the presence of mental or nervous disorder, and the effects of drugs, of chemicals, or of shock may cause symptoms indistinguishable save by scientific investigation from those of drunkenness.

VORONOFF'S METHOD OF REJUVENATION.

Dr. Serge Voronoff is an enthusiast whose literary output keeps pace with his surgical work, and "Étude sur la Vieillesse" (1926) is followed by an English publication entitled "The Study of Old Age and My Method of Rejuvenation,"[2] translated by Dr. F. F. Imianitoff. The introductory chapters deal with the immortality of unicellular organisms, and the mortality of more highly organised creatures—a mortality which Voronoff attributes, partly, at any rate, to degenerative processes in the endocrine glands during old age. He points out that the testis more than any other gland gives evidence of diminished function, for whereas the thyroid of an old man still continues to secrete, the testicles—at least so far as spermatogenesis is concerned—cease to function. The diminution in the activity of the sexual glands, according to Voronoff, occurs pari passu with the onset of the signs and symptoms of old age, and the similarity between symptoms of senility and those of testicular insufficiency were, of course, emphasised by Brown-Séquard as long ago as 1869. The arguments employed by Voronoff in favour of the use of testicular grafts are, indeed, strongly reminiscent of those formerly put forward by the advocates of treatment by injection of testicular extract. But unfortunately the problem is less simple than Brown-Séquard and Voronoff would lead us to believe. The changes in the testes during old age are part of a widespread process affecting the whole body, and there is no reason to regard testicular atrophy and senility as standing in the relationship of cause and effect. The real value of Voronoff's book lies not in its "scientific" preamble, but in its account of the practical results obtained from grafts; the value of his work must be determined by clinical results rather than theoretical arguments. No longer can it be suggested that his deductions are based on insufficient material. He has carried out the operation of grafting in over 1000 animals, and, if the work of other surgeons who have applied his methods is included, in over 600 men.

[1] THE LANCET, 1925, i., 111.

[2] London: The Gill Publishing Co., Ltd. 1926. Pp. 155. 10s. 6d.

His experiments have extended over some 13 years, and there has been plenty of opportunity of watching results.

In reading the book it is impossible not to be impressed by such cases as that of the senile ram, apparently at the end of his potency in 1918 and still vigorous and sireing lambs in 1925—a result apparently achieved by the use of three testicular grafts inserted in 1918, 1920, and 1923. A weighty argument in favour of this rejuvenation being the direct result of grafting is the fact that one year after the first operation the grafts were removed, their removal being immediately followed by a recrudescence of old age, signs of which again disappeared after the use of the second series of transplants. In speaking of man Voronoff suggests that the human organism reacts to grafting in exactly the same way as the ram or the bull. In his opinion results have been obtained in the human being as astonishing as those recorded amongst the lower animals. What is most surprising is that Voronoff employs heterografts obtained from chimpanzees, and yet the results published in his book appear to be far better than those obtained by Lespinasse, Morris, Lydston, and Kenneth Walker, when employing homografts obtained from human beings. Voronoff himself seems somewhat astonished at this, and asks: "Is the ape superior to man in the quality of his organs, in having a stronger physical constitution which is less marred by morbid inheritances such as arthritis, alcoholism, syphilis, &c.?" He states that thyroid grafting from simian glands has given him better results than the use of human thyroid. And yet it is a well-recognised fact that heterografts taken from animals lower in the scale than chimpanzees are rapidly absorbed. In a case described by Kenneth Walker in which he had the opportunity of examining human grafts which had been inserted, according to Voronoff's technique, five months previously, almost complete absorption of the testicular tissue had occurred. Voronoff, on the other hand, found that a simian graft examined 15 months after implantation showed complete survival of the epithelial cells of the seminiferous tubules.

Interesting as is "The Study of Old Age," it cannot be perused without a feeling of disappointment at the method of presentation. We hear too much of the author's successes and too little of his failures. No attempt has been made to analyse the thousand cases of animal grafting and the 600 human experiments, and to tabulate the results. In how many of these cases were the results of grafting negative, in how many partial, and in how many completely successful? Was any attempt made in the human cases to find evidence of success other than the statements of the patients, the increase of bodily weight, and the somewhat misleading testimony of the camera? Steinach, in presenting his results, spared no effort to furnish every possible piece of evidence that ingenuity could devise. His animals before vasoligature were subjected to searching tests in order to determine their muscular activity, their muscular coördination, their sexual activity, and their intelligence. These tests furnish data of great value in arriving at a conclusion as to the effect of the rejuvenation operation. Similarly in assessing the results of vasoligature applied to human beings Steinach's followers have produced objective evidence of reactivation. Peter Schmidt (Berlin), Knud Sande (Copenhagen), and H. Benjamin (New York) have shown that high blood pressure decreases considerably after vasoligature, although it rises somewhat a few months later. Again, Wilhelm (Santiago de Chile) has reported that as the result of vasoligature the number of red blood corpuscles and correspondingly the amount of hæmoglobin in the blood is considerably increased. This phenomenon explains the distinct improvement in the processes of oxidation after vasoligature which A. Loewy and H. Zondek (Berlin) have demonstrated by their measurements of the basal metabolism of different patients before and after operation. Wilhelm, in addition to his observations on the blood, has also studied muscular contractility before and after vasoligature and has furnished dynometric measurements showing that the increase in muscular strength amounts to several kilogrammes and is lasting. In comparing Steinach's work with that of Voronoff's we are not suggesting that vasoligature gives better results than grafting; the intention is rather to compare the methods that have been adopted by each worker in assessing results, and to emphasise the fact that whereas Steinach and his followers have spared no effort to obtain objective evidence of reactivation, Voronoff has contented himself with subjective evidence supplemented by the doubtful testimony of the camera. He writes for the public rather than for the scientist, and this will probably explain why the scientist has on the whole neglected his work. Ten cases examined before and after operation with every method of scientific precision are of more value in determining the effect of a graft than a hundred cases operated upon and reported upon, with only the data supplied by Voronoff. However much admiration we may feel for his enthusiasm and industry, we cannot but regret that he has not written with that exactitude which is expected of every scientific worker.

Annotations.

"Ne quid nimis."

THE END OF THE OUTBREAK OF ANTHRAX AT THE ZOO.

THE first part of the story of the recent outbreak of anthrax at the Zoological Gardens is set out in a report presented on Feb. 8th to the prosectorial committee of the Zoological Society by Dr. H. Harold Scott, pathologist to the Society. It will be remembered that two elephants died within a few days at the end of last year and autopsies were immediately performed. Smears taken from the blood and various tissues of Indiarini, the first elephant to die, showed the presence of large, rather square-ended bacilli. Anaerobic cultures from the same material grew well, while the aerobic ones did not; this led at first to the inference that the *B. pyogenes capsulatus* might be the cause of death. At the autopsy on Sundermalah, the second victim, a sore covered by a scab was found on the internal aspect of the right elbow. Smears made from the tissues underneath this scab and from the blood and various organs showed numerous bacilli suspicious of anthrax, but not quite typical in size or shape. However, cultures and stained sections confirmed the diagnosis. Prompt steps were taken to examine all the men who had been in contact with either of the animals, for cuts, sores, or spots, although at this stage the cause of death of the first elephant was still unproven. Three men were found to have small cuts or fissures on their hands, and another a spot on the face. Smears and cultures were put up from these, but, except for a growth of various types of staphylococcus, the results were negative. On the same or following day, however, one of these men noticed a spot on his wrist which, when he returned to the Gardens four days later, had developed into a papule becoming vesicular with hæmorrhagic periphery, the whole rather smaller than a threepenny piece. Smears and culture revealed the suspected *B. anthracis*. Since this individual had not come into any contact with Sundermalah, his infection proved that Indiarini also had died from anthrax, masked by a secondary or terminal infection. Some six days after the autopsy on the second elephant, the assistant who had helped to perform it found spots on his arm from which the bacillus was recovered, and two other contacts also developed lesions. All these cases were sent to St. Thomas's Hospital, and their speedy recovery under treatment by Sclavo's serum is recorded by Mr. R. H. Boggon in our columns this week.

Several points of interest emerge from the outbreak, which was confined within such narrow limits by the

prompt action of those in charge of the departments concerned. It is clear that infection may readily occur by a hair follicle when all care has been taken to seal cuts, fissures, or more open wounds; one of the assistants, who at the second autopsy gave himself a fairly deep cut, which was vigorously treated, showed no sign of infection, whereas the lesions in the affected persons appear all to have started in hair follicles. The incubation period was as much as six days in the two assistants who were exposed to infection only on one known occasion. It is noteworthy also that the initial sore is quite painless and, as Mr. Boggon points out, is only distinguishable from a septic spot by the history, the dark centre, and the surrounding pallor. The gratifying response of all the patients to serum injection made discussion of treatment superfluous; since serum may not always be quickly available in remote districts, we would call attention to the excellent results achieved in Germany and in South Africa by the intravenous injection of salvarsan.[1]

There remains the mystery as to the source of the anthrax infecting the elephants. In neither case did the intestines show any inflammation, and the probability of the animals having been infected by mouth is anyhow slight. Sections of the portal veins contain practically no bacilli, whereas those of the branches of the hepatic artery are crowded with them. Dr. Scott explains this contrast on the assumption that the systemic vessels carried the infection from the skin or lungs, and that infection did not gain entrance through the alimentary tract. In spite of the absence of signs of intestinal infection, the oil cake supplied to the elephants was examined bacterially, with negative results. Cultures made from fissures in the skin of the other five elephants in the Zoo also proved negative, and all these animals remain well; nor did examination of the pig oil with which the elephants are rubbed from time to time yield any information. The coöperation of the Ministry of Health was sought immediately, but so far all efforts to trace the source of infection have failed. This is of less moment since the outbreak was so swiftly recognised as to be confined to immediate contacts with the animals. The value to the Zoological Society and to the public of a medically qualified superintendent of the Gardens and a pathologist of repute to superintend the autopsies is manifest, and we congratulate the Society on the vigilance of its staff.

VERTIGO IN EPIDEMIC ENCEPHALITIS.

IN the December number of *Brain* and, more briefly in a discussion at the Manchester Medical Society which we report on page 438 of this issue, Dr. R. I. Poston draws attention to the occurrence of vertigo with other signs of vestibular disorder as an important symptom in epidemic encephalitis, or encephalitis lethargica. This manifestation of the disease, he says, has not been thoroughly studied in this country. Quoting Gerlier's account of an "epidemic of paralysing vertigo" which occurred near Geneva in 1886 and was characterised by vertigo, muscular relaxation and paralysis, and ocular disturbances, especially ptosis, and recalling a somewhat similar disease ("Kubisagari") which seemed to be endemic in parts of Japan in 1887, Dr. Poston puts the interesting question whether the pandemic of encephalitis lethargica of the last decade arose by spread of infection from earlier cases in Japan or Geneva. In the 1921 epidemic in Alsace-Lorraine, Barré and Reys were impressed by the great number of patients who complained of vertigo, loss of equilibrium, and lateropulsion, and they regarded these labyrinthine phenomena as cardinal symptoms, second only in importance to the more common oculomotor manifestations. The evidence of labyrinthine involvement which they obtained by means of the caloric and rotary tests showed that such a lesion was much more frequent than would be suspected from the patient's history, and they believe that vestibular phenomena are so frequent as to be worth searching for in every case of encephalitis. Dr. Poston quotes pathological evidence that the vestibular and neighbouring nuclei may be affected in epidemic encephalitis, and suggests that interference with vestibular function may account for many, if not all, of the oculomotor phenomena of the disease. He mentions ten cases in which he found that the vestibular tests gave abnormal results, and concludes that the possibility of a previous, current, or impending attack of epidemic encephalitis should always be considered seriously in the differential diagnosis of cases showing disordered equilibration. His full description of the very sensitive method of applying caloric and galvanic labyrinthine tests elaborated by Babinski, Weill, and Amado, will be of special interest to otologists. Now that attention has been directed to vestibular symptoms in this disease, it is probable that they will be looked for, and found, more often than at present.

DIAPHRAGMATIC HERNIA.

AMONG the interesting exhibits at the meeting of the Anatomical Society on Feb. 4th were examples of varieties of diaphragmatic hernia (two occurring in cats), shown by Lady Briscoe and by Dr. R. H. Hunter, while Dr. Beattie, of the Zoological Society, gave a communication on the same abnormality occurring in the lower animals. The subject of diaphragmatic hernia has great clinical interest, and would bear investigation by competent observers as to the forms, extent, and relative positions of the herniated parts and the corresponding apertures. Developmentally, also, more light might be thrown on the nature and position of the underlying abnormality in congenital cases. The primitive cœlomic cavity in which the lung bud forms is directly continuous with that of the abdomen, but the secondary cavity within which it enlarges is another thing. This last has no direct connexion with the abdomen save through the remnant of the primitive cavity, which quickly closes. But diaphragmatic herniæ are not by any means always a sequel of an unclosed opening of this sort, for they may take place through the œsophageal opening or through spaces elsewhere. All these seem to admit of being brought into line under systematic investigation. Some of the more monstrous kind, such as that shown by Lady Briscoe, where the liver was enveloped by the general pericardial sac, are apparently more straightforward developmentally than others which would seem simpler. We must await the proper classification of these important anomalies.

A ROUTINE TREATMENT FOR INFLUENZA.

THE outlines of a scheme for the treatment of uncomplicated influenza appear in the *Münchener Medizinische Wochenschrift* for Feb. 4th. The author, Prof. Trumpp, believes in supervising details which are often left to the judgment of relatives, and begins by laying down the conditions for nursing. The sick-room, he points out, should be the sunniest and airiest in the house. The patient should not face the light, and if the wall opposite him is too bright it should be draped with some dull material, though darkening of the whole room is undesirable. A window should be open at all times to an extent that will bring the room temperature to 60° F. by day and somewhat less by night. The better the ventilation the sooner the headache and malaise—and the pulmonary complications, if there are any—will depart. Warm, dry rooms are anathema to Prof. Trumpp. A woollen bed-jacket or sweater guards against sudden chill, especially at night, and the play of draughts on the body is prevented by using only one door in the room, and by placing the bed so that it is not on any line of the triangle whose sides join the window, door, and fire. Pillows should be firm, so as not to wrap an already suffering head, and the head end of the bed should be raised

[1] The Treatment of Anthrax by Adrianus Pijper, THE LANCET, 1926, i., 88.

on blocks. For uncomplicated cases Prof. Trumpp has a favourite mixture consisting of camphor, benzoic acid, and pyramidon. The first and third of these he regards as bacteridical; camphor, besides being a heart stimulant, is an expectorant; pyramidon reduces the temperature, and benzoic acid is an adjuvant to camphor. The amount given is 0·01 to 0·05 g. of camphor and the same quantity of benzoic acid, with 0·05 to 0·1 g. of pyramidon (according to age) in 0·5 g. lactose, this dose being taken three times a day in milk or water. Elimination of toxins by the skin and bowels plays an important part in Prof. Trumpp's treatment. He disapproves of cold applications, except an occasional cool pack for the feet, but for patients with sound hearts recommends a daily bath at 105° F. lasting a minute, with brisk gloving. After a vigorous rub-down with a towel the patient is whisked back to bed and given a glass of strong hot toddy. An enema at 75° F. should precede the first bath, being held for a minute and a half; besides acting as an aperient it also cools the body. Laxative drugs, according to Prof. Trumpp, are better avoided, and he advises that fruit should be given instead, also recommending wholemeal bread in the diet. The sceptical may feel doubtful whether the campaign in favour of "roughage" in bread need thus be carried into the sick-room of patients with acute fever, and may accordingly prefer to employ aperients whose dose can be more easily regulated. Prof. Trumpp has no objection to the patient fasting for a day or two if he wishes, but suggests that to stimulate appetite the teeth should be cleaned every two hours and the mouth rinsed with plain water. Cereals and puddings may be given in moderate quantities, but the use of meat and meat broths is discouraged. Prof. Trumpp's views have, of course, much in common with current practice in this country. They are chiefly interesting, perhaps, because he has worked out a comprehensive plan of treatment for all uncomplicated cases. Very many practitioners must have similar plans; but, on the other hand, it is not uncommon for patients with mild influenza to undergo unnecessary discomfort, not because their medical attendant can only pay them a hurried visit but because he has not thought out a scheme of treatment which can be rapidly applied in a large proportion of his cases.

THE HISTORY OF HARLEY STREET.

THE Royal Society of Medicine held an enjoyable social evening on Feb. 21st, when Sir James and Lady Berry welcomed a large gathering of Fellows and guests. In an address entitled Topographical and Medical Notes on Harley Street, Mr. Percy Flemming gave an absorbing account of the process by which the medical profession took over the part of Marylebone that lies between Regent's Park and Wigmore-street. He pointed out that the present phase of London's growth—the incorporation of surrounding towns and villages—began about 180 years ago. Marylebone was one of these outlying villages, but the growth of the city has long since obliterated the Fleet, the Westbourne, and the Tyburn streams which once formed its boundaries. These rivers now flow imprisoned in pipes under the roaring traffic from Hampstead to the Thames. West Bourne, and its overhead conduit in Sloane-square Station, has recently been immortalised by *Punch*; Fleet, or Hole Bourne, is now a sewer under Ludgate-circus, and Ty Bourne runs near the house of the Royal Society of Medicine, under various passages and courts near Marylebone-lane, which was its left bank. At the time of the Domesday Book, Marylebone was unknown, and the land was part of Tyburn Manor. The Harley-street district was the scene of public health enterprise in very early days, for in 1236 the City authorities, in their search for a safe water-supply, discovered the Tyburn and piped it where it was reinforced by a spring, just in the dip by Stratford-place. The critical time for the amenities of the place came in the reign of James I., who sold Tyburn Manor, but kept what is now Regent's Park for his own use, with the result that this invaluable oasis is still in the safe hands of the Crown. A scheme was later put forward for dividing the area into building sites. This evil was fortunately averted, but the southern end was partly built over, and one side of Harley-street is Crown property, and the other side privately owned, to this day. The park was let out to farmers, and there is contemporary evidence of its use by physicians for a kind of spa treatment. For instance, in 1772 a lady of Great Portland-street, the patient of a Dr. Armstrong, was advised to take an early walk every morning and to drink milk at a farmhouse situated near Yard Gate. Her son mentions the "elegant mansions" of Cavendish-square as the border of the town and the open country. This and its neighbouring squares were laid out in 1718, and soon became the home of the aristocracy. There would almost certainly have been a sprinkling of general practitioners here then, but the consultant district was in the City, round about Broad-street, New Bridge-street, and Finsbury-circus. The migration westward halted for a space in Bloomsbury, and for some time after that the favoured spot was Hanover-square. Only the later 'thirties saw the start of the Harley-street district, when a few consultants moved to Cavendish-square. The numbers slowly increased until in the 'sixties Harley-street began to be regarded as the right place for a consultant to live. Sir William Jenner was actually the first to arrive; he entered No. 8 in 1851. Mr. Flemming concluded by remarking on a trickle of medical men across Marylebone-road into Regent's Park, and speculated whether this foreshadowed a general migration. He illustrated his lecture with some interesting prints and maps of old Marylebone, the originals of which, with many others, were displayed in the Society's Library. He has set future speakers a high standard to live up to, for not only has he collected his material with expert patience and skill, but he possessed the ability to display it with humour and feeling. As long as such good fare is provided at the Society's social evenings their great popularity will never wane.

TREATMENT OF RINGWORM IN YOUNG CHILDREN.

THOUGH ringworm of the scalp can generally be cured in course of time by the conscientious application of ointments, it is agreed that measures against the organism are more likely to be successful if the infected hair can be completely removed as the first step in the treatment. For this purpose it is usual to give a nicely calculated dose of X rays, and the results are, on the whole, satisfactory. Most dermatologists, however, refrain from irradiating the scalp where the patients are small children, and with young subjects it is the current practice to dispense with epilation and to rely on the action of time-honoured remedies. This is undoubtedly inconvenient, and an attempt has lately been made to overcome the difficulties inherent in giving infants an epilatory dose of X rays. In the *British Journal of Dermatology and Syphilis* for last December, Dr. J. M. H. Macleod describes a special couch and immobilising cap designed by Mr. S. Cochrane Shanks, radiologist at Charing Cross Hospital, for the treatment of ringworm of the scalp in children under 3 years of age. The article is somewhat technical, and its main details would be likely to interest only the actual operator, but the summary of results in tabular form deserves attention. Of a total of 276 patients, 52 were between 1 and 2 years of age, and 224 between 2 and 3. In none of them was there a single serious mishap such as a resulting burn or permanent alopecia, nor was a second irradiation required in a single case. The results as regards technique are therefore beyond criticism, and

there is no reason to suppose that damage is caused to the brain by any action of the rays. But the fact remains that young children may be frightened by the noise and sparking of the apparatus, and if to this potential cause of alarm is added forcible constraint by an immobilising cap, and the use of a special couch on which the child is "strapped after being rolled tightly in a blanket," we have a combination of impressions which may fairly be described as terrifying, and which, if they do not produce an immediate effect, may well be stored up as interesting material for the psycho-analysts of a future generation. By a coincidence it happens that the claims of an alternative method of epilation are at present being put forward. We recently reported[1] a meeting of the Section of Medicine at the Royal Academy of Medicine in Ireland, at which Dr. Maurice Drummond demonstrated three cases in which the hair had been removed by single doses of thallium acetate, and last week we published[2] a more comprehensive account of the procedure, based on 24 cases, by Dr. G. B. Dowling and Dr. R. Kelman. It is unnecessary to repeat the details of technique which are given in these reports. The use of thallium acetate for producing baldness is by no means new, for Sabouraud, of Paris, experimented with it 30 years ago and advised against its employment as being both uncertain and unsafe. In the meantime, however, Prof. Buschke, of Berlin, has worked out a standard dose of from 8 to 9 mg. per kg. of body-weight, and this he describes as free from danger and almost invariably effective in its epilating action. He lays great stress, however, on the necessity for using only a chemically pure and biologically standardised preparation, and this he obtains from one firm of chemists only. Buschke's work has been repeated on a large scale in the United States and also in Mexico, where there was a shortage of X ray equipment during the late war. The claims put forward have been less cautious than those of Dr. Dowling, who freely admits that he has noticed mild toxic symptoms in a number of cases; in a discussion at the Section of Dermatology of the Royal Society of Medicine (which we report on p. 438 of this issue) he goes so far as to suggest that it might be well for patients to remain in bed for about three weeks after taking their single dose of thallium. The preparation used by Dr. Dowling and Dr. Kelman was not biologically standardised, but it seems unlikely that even standardisation can wholly prevent undesirable toxic symptoms arising from administration of a drug which is in reality used for its poisonous effect on the hairs or the nerves supplying them. Possibly, as Dr. H. C. Semon suggests, some means may be found of neutralising objectionable toxicity. In the meantime it is interesting to note the experiences of Dr. S. Monckton Copeman, who gave the Section of Dermatology a description of the effects of small repeated doses of thallium acetate on patients suffering from cancer, and those of H. R. Olivier, in France, who has recently reported[3] on chronic intoxication of animals with the drug. Olivier finds that prolonged administration to rats engenders a sort of refractive state in which hair is eventually replaced, and he also reports the production of benign papillomatous tumours of the stomach. It may be thought that these results are barely relevant since when the drug is used for children not more than a single dose is given. Their merit, however, is that they suggest extreme caution. Thallium is a poison with physiological effects resembling those of lead, and though ringworm of the scalp is an economic nuisance it in no way endangers life. Cases of idiosyncrasy may possibly be met, and even in ordinary cases the treatment requires great care. It will be very unfortunate if thallium comes into general use or misuse before it has been properly tested under the best conditions.

[1] THE LANCET, Feb. 12th, p. 343.
[2] THE LANCET, Feb. 19th, p. 389.
[3] Comptes Rendus de la Société de Biologie, vol. xcvi., No. 3.

EARLY AMERICAN SURGERY.

THE Hunterian Society made a wise choice when they asked Prof. J. M. T. Finney of Baltimore to deliver the Hunterian Lecture for 1927. Prof. Finney's recent visit was welcome not only because he is well known in England for his work at Johns Hopkins Hospital and for distinguished service with the American Expeditionary Force during the late war, but also because he represents that section of opinion in the United States which looks for and finds community rather than antagonism in the aims and ethics of Americans and English. This attitude was expressed when he chose to address the Hunterian Society on the Influence of John Hunter on Early American Surgery, a subject which not only gave him a chance of paying high tribute to a great surgeon but also of laying emphasis—where it should be laid—on the common origin of our traditions. In the present issue of THE LANCET (p. 469) we conclude the publication of Prof. Finney's lecture, and those who read it will find an able summary of the lives and work of some of the surgeons who flourished in the American "Hunterian Era." How directly many of these men were influenced by Hunter will seem surprising to those who do not know that large numbers of young Americans came to Europe—even soon after the War of Independence—to learn their trade in the continental and British schools. Some of the more notable were pupils of the Hunters in London and even members of their household. Of these an imporant example was William Shippen, jun., afterwards a founder of the Philadelphia Medical College, from whose diary Prof. Finney makes some quotations which are especially interesting as the period covered is one which is but little described in the books dealing with Hunter's life. Hunter's successful work and the record of his life are, however, fairly familiar to the medical profession in this country, and perhaps the special merit of Prof. Finney's lecture is that it describes for his English hearers some of the achievements—less often recognised—which stand to the credit of our surgical predecessors in the New World.

THE SALE OF ULTRA-VIOLET LAMPS.

A PRONOUNCEMENT on the sale of apparatus for the generation of ultra-violet rays has just been made by the Council on Physical Therapy of the American Medical Association.[1] The Council states that distribution of these generators to the public for self-treatment is undesirable on the following grounds:—

1. The uninformed public could not take the proper precautions in administering treatments and, as a result, severe general burns or grave injury to the eyes might ensue.

2. Those not familiar with the possibilities of such apparatus would be led to place unwarranted confidence in the therapeutic value of such treatment by the claims that might be made in the literature advertising such generators, and to undertake to treat serious conditions not amenable to such treatment.

3. The unrestricted possession of such therapeutic means would tend to deprive people of expert diagnosis by encouraging them to make self-diagnoses.

4. Such practice would encourage the sale of useless and fraudulent lamps which would be advertised as generators of ultra-violet rays, since the public would have no means at its disposal to determine the quality or quantity of the radiant energy emitted by such lamps.

For these reasons, says the Council, the sale or the advertising for sale, directly to the public, of a generator of ultra-violet energy is detrimental to the public welfare, and apparatus made by firms whose policy is thus detrimental will not in future be included in the official list of accepted devices for physical treatment. Medical men generally will support this action. The apparent ease with which ultra-violet apparatus can be manipulated may lead people to think that they can therefore give themselves treatment. Needless to say, this impression would

[1] Jour. Amer. Med. Assoc., Jan. 22nd.

be fostered by traders anxious only to increase their output. There is, however, a good case here for protecting the public from the dangers of ultra-violet rays. During the next few years some late effects of overdosage (such as cataract) may become apparent—just as occurred in the case of X ray therapy. It is to be hoped that the lead given by the American Medical Association will be followed by other powerful medical bodies.

THE ROYAL SOCIETY.

THE list of candidates for the Fellowship of the Royal Society who have been recommended by the Council for election this year, includes many names familiar to our readers. Prof. E. V. Appleton holds the Wheatstone Chair of Physics at King's College in the University of London; Dr. T. Graham Brown, professor of physiology in the Welsh National School of Medicine, has explored the spinal reflex in decerebrate mammals; while Mr. R. H. Burne, Physiological Curator of the Museum of the Royal College of Surgeons of England, is known for his work on the comparative anatomy of molluscs, fishes, and mammals. Dr. James Chadwick is engaged in the study of radio-activity in the Cavendish Laboratory at the University of Cambridge; Prof. James Kendall holds the Chair of Chemistry in Columbia University, New York. Dr. P. P. Laidlaw, formerly Gordon lecturer in pathology at Guy's Hospital Medical School, is now on the staff of the National Institute at Hampstead. His recent activities in the investigation of distemper, as also those of his colleague at the Institute, Mr. Otto Rosenheim on the parent substance of vitamin D, are referred to in another column. The more distant universities are honoured in the persons of Mr. A. A. Lawson, formerly lecturer at Glasgow, and now professor of botany in Sydney, and Mr. Meghnad Saha, professor of physics at Calcutta. Mr. J. S. B. Stopford, professor of anatomy in the University of Manchester and Dean of the Medical Faculty, in addition to purely academic research, has initiated work on the regeneration of nerves with results which proved of notable value in neurological surgery during and after the war. Finally, Dr. C. M. Wenyon, director-in-chief of the Wellcome Bureau of Scientific Research, is responsible for differentiation of intestinal parasites which has greatly facilitated the diagnosis of protozoal infections.

HEALTH ORGANISATION OF THE LEAGUE OF NATIONS.

UNDER the auspices of the Health Organisation of the League of Nations a further visit to Great Britain of public health officials from 12 different countries began on Monday last. Representatives of Belgium, China, Czecho-Slovakia, France, Germany, Greece, Italy, Lithuania, Poland, Rumania, Sweden, and Jugo-Slavia are taking part in the present interchange which will last six weeks. The first week is being spent in London, in visits to the various institutions of the Metropolitan Asylums Board in connexion with the control of infectious diseases, and in the study of London water-supply and housing schemes. Next week the public health officials will split up into groups to visit ports such as Liverpool and Glasgow, large industrial centres such as Birmingham and Bradford, a representative residential borough adjoining London—Hornsey has been selected—and certain rural areas in Berkshire. The officials will later reassemble in London for the final week, which will include inspection of meat and food markets, port sanitation, and visits to various institutions in connexion with medical research, eugenics, industrial psychology, tropical, naval and military hygiene, bacteriological laboratories, and the like. The party will probably leave England on April 2nd, and meet again in Geneva for the final conference, which includes a brief study of the working of the League and, in particular, of its Health Organisation. Practically all countries, including the United States, Russia and Turkey, as well as the Members of the League, take part in these interchanges, which are attended by roughly 100 medical officers a year, and are carried out with the financial assistance of the Rockefeller Foundation. This is the fifth occasion on which a number of foreign doctors have been here to study British public health services, and similar interchanges have taken place in most European countries, in South and Central America, the United States, Canada, West Africa, and Japan.

Colonel John Graham Martin, M.D., has been appointed honorary physician to the King. This reward comes after long years of meritorious service in the Territorial Army Medical Corps, in which Colonel Martin is now A.D.M.S. of the 55th (West Lancashire) Division. Dr. Martin, who practises in Liverpool, saw service in the South African War as a civil surgeon and in the European War, when he attained his present position. It is understood that this is the first time this honour has been granted to a Territorial officer.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Lt. J. W. Tighe to be Surg.-Lt.-Comdr.

Surg.-Comdr. W. R. Harrison is placed on ret. list with rank of Surg.-Capt.

ROYAL NAVAL MEDICAL RESERVE.

Prob. Surg.-Sub-Lts. to be Surg.-Sub-Lts: H. G. Ungley and D. S. Buchanan.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. P. G. Easton retires on ret. pay.

Maj. J. J. H. Beckton is placed on the half pay list on account of ill-health.

Capts. to be Majs.: D. S. Martin, W. L. E. Reynolds (Prov.), W. K. Campbell (Prov.), and C. G. G. Keane.

Capt. S. J. C. Holden to be Maj.

Capt. A. J. Bado, R.A.M.C., to be Divl. Adjt. 43rd (Wessex) Div., vice Capt. A. Rodd to half pay.

Temp. Capt. S. E. Elphick relinquishes his commn. on account of ill-health, and retains the rank of Capt.

Lt. (on Prob.) R. V. Franklin, from the secd. list, is restd. to the estabt.

Lts. (on prob.) confirmed in their rank: F. P. M. Anderson, J. D. Borham, P. F. Palmer, D. Bluett, C. E. Eccles, F. M. Collins, J. A. Chapel.

MILITIA.

Maj. F. Jefferson relinquishes his commn. and retains the rank of Maj.

TERRITORIAL ARMY.

The King has approved of the following appointment:—To be Honorary Physician to His Majesty: Col. J. G. Martin, 55th (W. Lanc.) Div., in succession to Col. G. H. Edington (ret.).

Capt. A. H. Fullerton to be Maj. (Prov.), and Lts. W. Simpson, R. N. Craig (Prov.), and R. S. Creed to be Capt. (Prov.).

INDIAN MEDICAL SERVICE.

The King has approved the retirement of Lt.-Col. W. D. H. Stevenson.

Lts. Madhav Krishna Kelavkar, Gurdial Singh Gill, and Ranjit Sen to be Capts.

Pran Nath to be Temp. Lt.

LEEDS PENSIONS HOSPITAL.—The new Ministry of Pensions Hospital at Chapel Allerton is now practically complete and will be opened next month. The nucleus of the institution, which is described as the finest Ministry of Pensions Hospital in the country, was Gledhow Grove, the former residence of Mr. F. J. Kitson, which has been converted into administrative headquarters. The new buildings are of an artificial stone composed of washed gravel, cement, and sand, of local manufacture, now used for the first time on a large scale; the whole of the timber comes from the Dominions. In addition to the usual departments, the buildings, which will hold 260 patients, include a recreation hall, a gymnasium, tennis-courts, football ground, and recreational workshops which will be rented by firms making artificial limbs.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXII.—TREATMENT OF POISONING.

IN the treatment of poisoning, acute and chronic, pharmacology must be the keynote of procedure; common sense goes a long way, but without a sound knowledge of the action of poisons and drugs, and a moderate armamentarium, the practitioner may lose the patient.

(1) ACUTE POISONING.

The steps to be taken are three: first, to get rid of the poison out of the system; secondly, to neutralise or render harmless what cannot be removed; and thirdly, to meet the damage already done and to mitigate general symptoms. It is obvious that these steps will frequently be taken simultaneously.

Elimination of the Poison.

Are there any cases in which the attempt to eliminate the poison should not be made? It is generally stated that emetics and the stomach-tube are to be avoided in corrosive poisoning, but it is fairly evident that, where the situation is such that the stomach cannot be emptied, the death warrant is signed. It is, however, of no use to pass a stomach-tube on a dying man. In any case, then, where there is a reasonable opportunity, we must use either stomach-tube or emetic. But emetic and stomach-tube are by no means antagonistic. I have seen cases where an emetic has been given and the attempt to pass the stomach-tube shortly afterwards has promptly determined vomiting; also cases where, after washing out, an emetic left in the stomach has cleared the residue, a quantity by no means negligible. With unconscious patients in narcotic poisoning emetics cannot be swallowed and, even when administered hypodermically, act badly. Here the stomach-tube is essential; but it is just in these cases that the passage of the tube is extraordinarily difficult. Taking poisoning cases generally, it may be said that it is best to use the tube and wash the stomach out well.

Details of the use of the stomach-tube are hardly necessary. The apparatus needs a long piece of tubing and a funnel, which is raised or depressed according as the water is to flow into or out of the stomach. The use of a gag, the finger passed along the tongue to the back of the pharynx, and the tube passed along this usually made the insertion easy. A movement of the head slightly forwards may ease the passage. After the insertion it is safer to pour water into the stomach before withdrawing the contents. Substitutes for a specially manufactured stomach-tube may have to be found. I have heard of one case of strychnine poisoning in a child where life was saved by the expedient of cutting off the nozzle of a Higginson's syringe and passing the tube as far as it would reach and of driving water into the stomach till it flowed back outside the tube.

Emetics may be divided into two classes, those stimulating the vomiting centre and those irritating the gastric mucous membrane, so that vomiting is caused reflexly.

Apomorphine is alone used of the drugs of the former class. It has two great advantages over all other emetics, that it can be given hypodermically and that it acts quickly. It should be used in full hypodermic dose of one-tenth of a grain or more if the patient is of big size. It is best carried in tablet form as the official hypodermic injection does not keep. Vomiting should occur in a few minutes. After vomiting the patient tends to sleep, for apomorphine is distinctly narcotic as well as emetic. In some poisonings this last action is by no means beneficial, but even in morphine poisoning it is customary to use this drug, though there is always a question whether the apomorphine is going to do its own work or to aid and abet its sister drug. Of the other class of emetics, mustard (a dessertspoonful in a pint of water) is active, and has the advantage of being a household remedy. Zinc sulphate is the most efficient of the purely pharmacopœial drugs; its dose of half a drachm may be exceeded, but if this is done, one is bound to continue its administration till vomiting does occur. Copper sulphate is good, but is more likely to leave traces of irritation than is zinc sulphate. Antimony (in the form of tartar emetic) and ipecacuanha act too slowly to be satisfactory emetics. The latter is safer and may be at hand, in the form of ipec. wine, as a household remedy; if so the full emetic dose, according to age, should be given, followed by teaspoonful doses at intervals of ten minutes till vomiting occurs; but in poisoning cases such slow action is dangerous. Common salt in strong solution, as strong as the water will dissolve it, may fail, but the use of this, combined with tickling of the throat, needs as little special apparatus and material as does any method of causing vomiting.

The addition of suitable purgatives to emetics given is not to be forgotten. These prevent absorption, especially where some antidote is being used which causes a temporary precipitation of the poison.

Gaseous poisons have to be eliminated by the respiratory tract and the elimination is best procured by the use of oxygen; this should be given, not by the haphazard method of holding a tube near the face, but with a mask such as is used for gas administration.

A mixture of 95 per cent. of oxygen and 5 per cent. of carbon dioxide acts best, for the carbon dioxide in this excess stimulates the respiratory centre to act more vigorously. In coal-gas poisoning carbon monoxide fixes itself to the hæmoglobin of the red blood corpuscles and is difficult to displace. In poisoning by prussic acid an even more difficult problem arises, for this inactivates all the tissues it meets, so that the transmission of oxygen becomes very difficult.

The introduction of poisons *hypodermically* takes away any chance of elimination by emetics or stomach-tube and throws all the stress of treatment on neutralisation in the tissues or on elimination by the natural channels, and on support of the patient till the poison wears itself out.

Neutralisation of the Poison.

A knowledge of pharmacology here becomes essential. Many poisons fall into classes and can be treated accordingly, others need individual consideration.

We have no antidote which counteracts all poisons, but both fatty and albuminous material form a layer on the walls of the digestive tract, protecting them, and actually attach themselves to many poisons of the corrosive and irritant type. White of egg, milk, oils, and linseed tea are valuable in this class. Chalk, lime, magnesia and water in which soap is suspended, act by neutralising acids and precipitating insoluble salts of the earthy metals. Charcoal delays the action of many poisons both alkaloidal and irritant.

Many of the above-mentioned antidotes are to be found in the home and none are likely to do harm, unless it be oils in the case of phosphorus poisoning.

Alkaloids.—Death in most poisons of the alkaloidal type is due to paralysis of the respiratory centre, and drugs which sustain this centre, such as caffeine and strychnine, are largely used.

Tea and coffee may be given, if necessary by rectum. Apart from their stimulant action, the tannin in them, when given by the stomach, acts as a true antidote, for it precipitates alkaloids. Tannic acid may also be given in pure form or in one of its vegetable combinations. It is obvious that the precipitated alkaloid must be hurried out of the intestine; it is only precipitated, not destroyed. Potassium permanganate is given in weak solution, because it oxidises alkaloids and destroys them. A weak solution of this is often used to wash out the stomach, especially in opium poisoning.

Strong alkalies are neutralised by weak acids such as vinegar; strong acids by weak alkalies such as carbonates and magnesium oxide. Irritant poisons are held up by albuminous and fatty material.

Some Individual Poisons.

Carbolic acid and its relatives, all of which are narcotic as well as corrosive, easily hold the first place for frequency, and so for importance. Sulphates, best given in the form of magnesium sulphate, render inert all the carbolic acid with which they come in contact, whether in the alimentary tract or in the body tissues. Till the sulphates in the body are overcome, the carbolic group cannot act on the tissues.

Oxalic acid needs not only neutralisation but neutralisation with some salt which throws down insoluble oxalate

Calcium salts in the form of chalk and lime water are satisfactory, but potassium and sodium are to be avoided.

Morphine poisoning is now rare. Artificial respiration should be tried where breathing fails, but it is probable that the very active exercise that is sometimes practised, especially when combined with exposure, tends to exhaust the patient and to spread the poison.

Strychnine Poisoning.—Here the hope of recovery depends on the stomach being emptied before the spasms become severe, and early injection of apomorphine and early washing out of the stomach mean much. The use of chloroform anæsthesia to allay spasm is justified though it is not without risk. Even if unsuccessful in saving life it does allay the mental anguish which is one of the features of this poisoning.

Belladonna may to some extent be met by pilocarpine injection, but pilocarpine may weaken the heart and the dose must not be large. Fortunately belladonna cases usually do well.

Phosphorus poisoning has largely disappeared with more stringent regulations as to the use of white phosphorus in matches. Oils are here to be avoided. Oxidising agents as weak liquor hydrogen peroxidi or sanitas may be given. Copper sulphate is a suitable emetic, for copper is precipitated in metallic form on the particles of phosphorus and renders them inert. Three grains may be given every five minutes till vomiting occurs.

Arsenic poisoning is usually met by an attempt to precipitate the poison as an insoluble arsenite. This is said to be brought down when ferric hydroxide is given. A drachm of tinctura ferri perchloridi in half an ounce of water is mixed, on the spot, with half a drachm of bicarbonate of soda dissolved in half an ounce of water, and the mixture, which contains a bulky precipitate of ferric hydroxide, is swallowed. The same dose is taken several times at intervals of five or ten minutes.

General Treatment.

It is too often forgotten that the patient himself must be carefully looked after; this may occur in the private house as well as in the accident room of an institution. If the sufferer is doomed we must at least make him comfortable, and, even if his fate hangs in the balance, a dose of morphia may help by lessening shock. Too frequently one sees a patient left in a cold collapsed condition, a condition probably accentuated by water dashed over him for stimulant purposes or spilled when the stomach has been washed out. Warmth is essential if the patient is to be brought round. Hot blankets and rectal injections of hot fluids help to ward off collapse.

Preparations for Emergencies.

Every doctor in practice should have ready for emergency a stomach-tube with funnel, glycerine, gag, hypodermic syringe, morphine and apomorphine in tablets, zinc suphate, magnesium sulphate, charcoal, potassium permanganate, iron perchloride, and sodium bicarbonate. Any case of poisoning may be more serious than it appears at first sight. Treat it early and actively, and do not send it to anyone else, unless he is very easily reached or has apparatus more efficient than you have. Time means life.

(2) CHRONIC POISONING.

Of this little need be said, for in most cases to recognise the cause is itself to stop the trouble. Such cases arise: (1) in certain trades—here the practitioner is more likely to have to give evidence than to treat; (2) in drug habits, morphine, veronal, alcohol—here the treatment is special, and is fully noted in special and general medical literature; (3) in casual poisonings, as from arsenic in wall-papers and from lead in water-supplies; (4) as a result of foul play. In some cases elimination may be helped. Lead, for instance, forms with iodides a soluble salt and for this reason iodides are given to get it out of the tissues. With sulphates it forms the very insoluble lead sulphate; for this reason magnesium sulphate is given to precipitate the excreted or unabsorbed salts in the intestine and to help to carry them out of the body.

E. BOSDIN LEECH, M.D. Camb., F.R.C.P. Lond.,
Lecturer in Pharmacology and Therapeutics, Manchester University.

Special Articles.

MEDICAL RESEARCH COUNCIL.

ANNUAL REPORT FOR 1925–26.

THE report[1] of the Committee of the Privy Council for Medical Research for the year 1925-1926 records a change in its composition, the office of Chief Secretary for Ireland having become obsolete. The Committee now consists of the Lord President of the Council, the Secretary of State for Home Affairs, the Secretary of State for Dominion Affairs, the Secretary of State for the Colonies, the Minister of Health (England and Wales), and the Secretary (now Secretary of State) for Scotland. The Secretary of State for Home Affairs, while representing the interests of Northern Ireland, is representative also of the interests of industrial hygiene in their relation to medical research.

The grant-in-aid of £135,000 provided by Parliament for the expenditure of the Medical Research Council during the financial year has been allocated as follows: For administration, £8500; for the expenses of the National Institute for Medical Research at Hampstead and of the farm laboratories at Mill Hill, £45,500; for research grants to scientific workers and for the expenses of their researches at other centres, £81,000. The number of members of the Medical Research Council has been increased from ten to eleven, and now includes: the Earl of Balfour (chairman), Lord Mildmay of Flete (treasurer), Mr. William Graham, M.P., Sir Frederick W. Andrewes, Prof. E. P. Cathcart, Prof. G. Dreyer, Sir Archibald E. Garrod, Sir Frederick G. Hopkins, Professor C. J. Martin, Sir Charles S. Sherrington, Sir Cuthbert S. Wallace and Sir Walter M. Fletcher (Secretary).

In the introduction to this year's report the Council give some admirable examples of the interplay between what sometimes seems to be only the academic work of the scientific laboratory on the one hand, and, on the other, the work of applied or practical medical science. These examples serve to illustrate the kind of work being done under their auspices, which is described in more detail later in the report.

Histamine.

The isolation of histamine from ergot and then from the wall of the human intestine by Dr. H. H. Dale, Prof. G. Barger and Dr. P. P. Laidlaw some years ago has proved to be of great physiological significance. Its bearing on our knowledge of the mechanism of shock and of the capillary circulation in general is familiar to our readers, as are also the researches by Sir Thomas Lewis and his colleagues, which show that the reaction of the skin to certain insults produces effects of local flushing and swelling indistinguishable from those produced by histamine.[2] At many other points the production of histamine in the body seems to take on a wide medical significance. Its identification in the liver has a bearing upon some recent claims made in Canada for an extract of liver which was believed to have specific properties of lowering the blood pressure in man.

Examination of such an extract by Dr. C. H. Best and Dr. Dale showed the presence in it of two vasodilator principles, which were subsequently identified with choline and histamine respectively. Physiological experiments with an extract prepared from lung under similar conditions showed that it was peculiarly rich in substances lowering the blood-pressure, having an action mostly of the histamine type. Mr. W. V. Thorpe was able to isolate from a purified lung extract about three-quarters of the active principle present according to the physiological estimate, and to identify it chemically as histamine, obtaining from 10 kg.

[1] Report of the Medical Research Council for the year 1925–26. London: H.M. Stationery Office. Pp. 161. 3s. 6d.
[2] See THE LANCET, Jan. 1st, 1927, p. 39.

of fresh lung a yield of nearly 300 mg. of this intensely active base. Extracts of other tissues are now being studied by similar methods. It is already clear that a widely spread vasodilator substance, long known to be yielded by almost all tissues of the body, will probably prove to be histamine.

Clinical investigations are being made by Miss I. Harmer, working under Sir Thomas Lewis, on the action of liver extracts and of artificial mixtures of choline and histamine on patients with high blood pressures.

Cholesterol and Vitamins.

The most familiar of the sterols is cholesterol, which occurs in gall-stones, in the natural grease of the skin, in the sheaths of nerve-fibres, and is widely distributed elsewhere in the animal body. What was known as the result of long and laborious investigations, of its origin and fate in the body, suggested that it was a relatively inert substance. Meanwhile chemical studies of great ingenuity and elegance had revealed the complex architecture of the cholesterol molecule, and its relation to that of other sterols occurring in animals and plants. The recent discovery that the antirachitic vitamin D is actually formed when cholesterol and certain other sterols are exposed to rays of ultra-violet light considered in relation to the structure of the sterol group will, it is hoped, lead to an understanding of the relation between the effects of natural foods and of substances like cod-liver oil, and those of exposure to clear sunlight in clean air, in producing normal and healthy development of the body. The Council acknowledge the help given to Mr. O. Rosenheim and Mr. Webster in their work by Prof. Windaus of Göttingen and Prof. I. M. Heilbron of Liverpool.

Insulin.

The Council draw attention to their prophecy in their annual report for 1922-23 that "insulin will prove to have an importance for physiology far beyond that of its use in the treatment of diabetes." This prophecy has received ample fulfilment.

Dr. Best and Dr. J. Hoet of Louvain have been working in collaboration with Dr. Dale and his colleagues at Hampstead, and joint investigations have been undertaken into the fate of the glucose which disappears from the circulation under the action of insulin. The conclusion provisionally arrived at is that insulin not only promotes the storage of circulating glucose as glycogen, but has a restraining influence on the new formation of carbo-hydrate in the liver. On this conception, therefore, the action of insulin in excessive doses is merely an exaggeration of that which it exerts in physiological and therapeutic amounts. As an incidental outcome of this work on insulin, phenomena have been observed by Dr. Hoet and Mr. H. P. Marks which have an important bearing on the nature of *rigor mortis*, and by implication, therefore, on the chemical changes which result in muscular contraction. Workers with insulin have often observed that an animal dying from an overdose becomes rigid with remarkable rapidity. Dr. Hoet and Mr. Marks found that the same precipitate onset of *rigor mortis* occurred in rabbits which died after daily administration of thyroid substance for some weeks. The common factor was the practically complete exhaustion of the muscle-glycogen, and the consequent failure to rebuild the hexosephosphate or "lactacidogen."

They found that such glycogen-free muscles enter into rigor with their reaction still alkaline—an observation already made, indeed, by Claude Bernard in 1879, but apparently overlooked in the recent development of theories of contraction and rigor.

The new evidence strongly suggests that the disappearance and reformation of lactacidogen are factors as important, in contraction and relaxation respectively, as are the appearance and removal of lactic acid; and, further, that *rigor mortis* is essentially a contraction rendered irreversible by failure to reform the lactacidogen, either through shortage of the raw material, when glycogen is exhausted, or through death of the synthetic mechanism, as in ordinary *rigor mortis*.

Diet and Teeth.

Some eight years ago Mrs. May Mellanby showed that deficiency of the vitamin now labelled D in diet otherwise complete and abundant, if inflicted during the period of dentition, leads, in animals, to the imperfect development of the jaws and teeth; this deficiency, according to the degree of its severity, causes interference with the formation of the enamel coating of the teeth, ranging from complete absence of enamel through various grades of imperfection, more or less notable, of the fine prismatic architecture of the enamel upon which its great hardness depends. The deficiency in diet leads also to corresponding malformation of the dentine of the teeth.

When these results were first reported, doubt immediately arose as to whether the results of these animal experiments could be related directly to the observed phenomena in human beings. The general experience of dentists led them to believe that dental decay, even if more common in badly formed teeth, is common also in teeth apparently perfect in their enamel. It led them further to believe that decay can hardly be related directly to the diet (irrespective of the possible external effects of food retained within the mouth) since decay had seemed to be as common in the teeth of the well-to-do classes, and among individuals obviously well nourished from birth, as in those of the poorer classes or among persons bearing other marks of faulty nutrition. Mrs. Mellanby proceeded accordingly to make further inquiry. She found in the first place that ordinary naked-eye examination of the teeth is not enough to show faults of fine structure. Microscopic examination of over a thousand shed or extracted teeth from children of all classes revealed wide spread defects in structure both in enamel and dentine. Of the badly-formed teeth 95 per cent. showed decay; of the well-formed teeth only 23 per cent. showed decay. In the defective teeth in which no caries was present good secondary dentine was in general found. The teeth of normal structure that showed caries had usually badly-formed secondary dentine. The explanation of these exceptional cases is probably provided by the results of animal experiments, which have shown that good secondary dentine is formed in the teeth upon an adequate "calcifying" diet, even though the original enamel had been badly formed as the result of inadequate diet during the time of dentition. With Dr. Lee Pattison, Mrs. Mellanby has already investigated the actual results of varying the amounts of calcifying potencies of the standard diets in a large community of children. Clear indications have already been given that the amount of new caries is greatly diminished by the addition of the vitamin. When, on the other hand, the vitamin is diminished and the anti-calcifying substance found in cereals, especially in oatmeal, is increased, caries spreads rapidly. The Dental Committee who supervise the programme of work which the Council undertake with large assistance by grants from the Dental Board of the United Kingdom, are now making more extended inquiries in these directions.

The paradox that persons apparently completely nourished throughout life may have teeth of which the architecture nevertheless shows signs characteristic of a specific deficiency in diet, has great biological interest. It may be solved if we may suppose what only further research can prove—namely, that in a body rapidly growing under the stimulus of full nutrition, the calls upon the available vitamin made by particular parts of it may be so insistent or for some reason so successful that other parts, as for instance, the teeth, fail to gain their due supply, and a relative local deficiency is established.

In the light of these recent studies it seems possible that the teeth of a nation may give a sensitive index of the degree to which the constitution of the diet is adapted to the complex needs of each section of the population.

Filter Passers and Cancer.

Fifteen years ago Dr. Peyton Rous showed that filter-passing material obtained from chicken sarcoma could propagate, without the presence in it of any visible cells, another malignant and rapidly fatal tumour of the same kind in a bird of the same breed.

It will be remembered that in 1925, Dr. W. E. Gye, working with Mr. J. E. Barnard, found evidence which he believed could only be explained on the hypothesis that the filtered and cell-free material obtainable from the Rous tumour is separable into two factors, either of which alone is innocuous and inactive. One agent he believed to be a non-living chemical substance, the so-called "specific factor," which is rapidly destructible at a temperature of 55° C. and bears the specific racial qualities of the particular animal from which it is immediately derived. The second factor he regards as a corpuscular virus, small enough

to pass through very fine filters, too small to be visible by ordinary microscopic means but not too small to be acted upon by gravity in a fluid suspension, and not too small to be photographed if light rays of wave-lengths beyond the visible spectrum be used with appropriate apparatus. The specific chemical factor, inactive alone, can be activated by the addition to it of the virus; the activating virus is not racially specific because a virus derived from a malignant tumour in one kind of animal can be substituted for the virus of another. Thus Dr. Gye has repeatedly produced tumours in the fowl by taking the specific factor—that is, an extract of fowl tumour in which he believes the virus to have been destroyed, and by adding to it extract, or "virus," derived from mammalian tumours, including cancerous and other growths removed from human patients by operation.

This hypothesis of the double nature of the effective agency allows at once the reconciliation, as the Council pointed out last year, of the two opposite schools of thought, namely—those who believe in some common causative factor of a parasitic kind as accounting for the points of similarity in the malignant tumours of all kinds of animals and those, again, who, knowing the impossibility of transmitting a malignant growth directly from one animal to another of different kind, are disposed, on this negative ground, to resist as inconceivable any infective or parasitic theory of cancer.

Workers from the chief centres of cancer research of many countries have visited the National Institute during the past year for personal observation of Dr. Gye's methods and results, with those of Mr. Barnard. Time will show whether Dr. Gye's provisional interpretation of his experimental facts is true, in part or in whole, but, however that may be, it is certain that his work has brought fresh outlook and hope and has given a strong stimulus to new activities in the cancer research laboratories of almost every country.

On questions of fact some laboratories have confirmed, while some have hitherto not confirmed, this or that part of his work. It must be remembered that the technical manipulations involved are difficult and that their due performance must always largely depend upon individual skill. The chief issues raised are relatively simple and come from two sides.

From the beginning it has been doubted by some whether the chloroform with which Dr. Gye treated the tumour extract does, in the concentrations used, effectively destroy the virus and leave the specific factor, as he believed, in isolation, impotent to cause new tumour formation without the addition to it of fresh virus. In more recent work, already published in part, Dr. Gye has found that other antiseptics of diverse chemical nature, like acriflavine or cyanides, can be used instead of chloroform. The chemical destruction of the virus by antiseptics finds closely parallel and confirmatory results in those of physical removal, as when the corpuscular particles of virus are separated mechanically, by very rapid spinning in a centrifuge, from the specific factor which remains in solution. Dr. Gye is actively continuing this work and has found no reason at all to modify his position. His results in detail are being published as early as possible.

The second line of attack disputes the validity of Dr. Gye's claim that he can cultivate the virus outside the body by successive transplantations from tube to tube of culture medium. For it has been alleged in some laboratories that the tumour juice, which has been treated by antiseptics for the destruction of the virus and which is believed therefore to contain the "specific factor" alone, can be reactivated not only by "virus" from another tumour, as Dr. Gye finds, but equally well by non-cancerous material, for instance by normal embryonic tissue. If that be true, then Dr. Gye's hypothesis, though not upset, becomes widened almost to absurdity, because the virus becomes an agent of almost ubiquitous origin instead of one associated always with malignant growth. Moreover, since all Dr. Gye's cultures contained embryonic tissue, his evidence for artificial cultivation of the virus outside the body is destroyed. Here is a conflict of testimony, of which only time can settle the outcome. The position will be clearer when the results of further experiments have been published for proper consideration.

It must be recalled, finally, that the problem which here challenges the scientific world is the proved and admitted capacity of the liquid juice of a tumour, free from any cells and containing no particles visible by ordinary light, to carry within it two biological properties at the same time; one that of producing a new tumour, the second that of holding within itself some intimate pattern of substance which forbids propagation of the tumour except in an animal of the same species and of close blood-relationship within the species. In what part or parts of the fluid do these two properties reside? This challenge has been standing open now for 15 years. Dr. Gye, in taking it up, has produced the first coherent explanation based upon experiment. Whatever be the final outcome of his work it has at least drawn many other workers already to face this outstanding problem which has been left disregarded too long.

(To be concluded.)

MEDICINE AND THE LAW.

Seditious Conspiracies.

A MESSAGE from a Monmouthshire correspondent in the *Times* of Feb. 14th mentions an alleged Communist plan for raising in South Wales a Workers' Defence Force with a medical branch and with personnel trained in the rendering of first aid. If there is at any time to be civil war, it is an admirable proposal that preliminary arrangements should be concerted for binding up the broken heads; but it is doubtful whether the non-combatant nature of a doctor's duties would protect him from the clutches of the criminal law if he joined a movement of this nature. Apart from the solemn capital offence of high treason, and apart from Acts of Parliament which deal with unlawful societies and seditious meetings, there is an Unlawful Drilling Act of 1819 which definitely prohibits "as dangerous to the peace and security of His Majesty's liege subjects and of his government" any meeting or assembly of persons for the purpose of training or drilling themselves or for the purpose of practising any military exercise, movements, or evolutions without any lawful authority from His Majesty, a secretary of state, or an officer deputed to act in that connexion. Persons attending such meetings or taking part in such training are liable to a sentence of seven years' penal servitude. When, as during the stoppage of work in the coalfields last year, the Emergency Powers Act machinery has been brought into operation, the usual code of Emergency Regulations provides a summary method of dealing with the same range of offences, trial being thus expedited and simplified and punishment reduced. It is probable that, if it ever were necessary to institute large-scale criminal proceedings against persons concerned in anti-governmental movements—movements, that is to say, not directed against the particular government of the day, but against the general established order of government in the country—those persons would be indicted on a charge of seditious conspiracy. Such a charge flings its net very wide, and evidence of all kinds of acts and incidents becomes admissible as evidence of the common unlawful purpose. A seditious intention is defined in the legal text-books as possibly including five varieties—first the intention to bring into hatred or contempt, or to excite disaffection against, the king or the government and constitution of the country or against Parliament or the administration of justice; secondly the intention to excite His Majesty's subjects to attempt, otherwise than by unlawful means, the alteration of any matter in church or State by law established; thirdly, to incite anyone to commit any crime in disturbance of the peace; fourthly, to raise discontent or disaffection among His Majesty's subjects; and fifthly, to promote feelings of ill-will and hostility between different classes of such subjects. Those five alternatives are declared seditious on the high authority of Lord Halsbury's "Laws of England"; the language may

sometimes sound old-fashioned, but the State would not be powerless in the face of serious threats. Medical personnel might not be regarded as being trained or exercised in military movements and evolutions, but anyone who accepted membership of a seditious body and conformed to its orders, organisation, and operations would undoubtedly be taking part in a seditious conspiracy, even though the purity of humanitarian motives might offer some prospect of escaping the heaviest sentence. This discussion, it may be confidently hoped, is of academic interest only. It is unnecessary to add that, the stronger and more elaborately organised an unconstitutional movement becomes, the greater severity is to be expected in the administration of the law.

Professional Discipline: An Imperfect Parallel.

Those who are interested in statutory provisions for enforcing professional discipline will have noted the appearance of the new Solicitors Bill. The Law Society has found that the statutory machinery for striking a solicitor off the Rolls or for suspending him temporarily from practice can be stultified because the person concerned can still obtain employment in a nominally subordinate position. The Bill, therefore, proposes that no solicitor shall, without the written permission of the Society, employ or remunerate any person who, to the knowledge of the solicitor, has been struck off the Rolls or is suspended from practice. Any solicitor dissatisfied by a decision of the Society in this connexion is to have a right of appeal to the Master of the Rolls. The second clause of the Bill imposes a penalty upon anyone who has been struck off the Rolls or suspended from practice and seeks or accepts employment by a solicitor without disclosing his disability.

These proposals show once more how imperfect is the superficial parallel between the disciplinary systems of the medical and the legal professions. The Law Society is equipped with far greater powers over solicitors than the General Medical Council possesses over doctors. Up to a point there is similarity. Each profession is allowed to define its own standards of conduct and to apply them judicially. Thereafter there is a marked divergence. The solicitor who violates the accepted standards can at present be substantially—and, if the new Bill passes, may in future be absolutely—debarred from practising his profession in any form. But the doctor who in similar circumstances is punished by having his name removed from the Medical Register is still left at liberty to practise medicine with but few restrictions. Indeed, in one sense he has a positive advantage, for he can thenceforward compete without the restraint of professional standards against registered medical practitioners who are more scrupulous in maintaining recognised traditions.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Charter Day Dinner of the Royal College of Surgeons.

THE Charter Day Dinner of the Royal College of Surgeons in Ireland was held on Feb. 19th in the College Hall, the President, Mr. Andrew Fullerton, in the chair. Special interest was taken in the dinner this year, as it is the first occasion for over 60 years that the College has chosen as president a surgeon who resides outside Dublin. Mr. Fullerton is professor of surgery in Queen's University, Belfast, and one of the surgeons of the Royal Victoria Hospital, Belfast. On only one previous occasion has the College had a president from the provinces—namely, in 1862, when Thomas Lewis Mackesy, of Waterford, was elected. There was a very large attendance of Dublin Fellows and their friends to welcome Mr. Fullerton, and no less than 30 of his colleagues from Belfast attended as guests. In fact, the entire staffs of the Royal Victoria Hospital and of the Mater Infirmorum travelled to Dublin for the occasion. Mr. T. Healey, the Governor-General of the Irish Free State, was the principal guest. Acknowledging the toast of his health, he said that the College had received its Charter in 1784, and now, after a lapse of nearly 150 years, had gone to Belfast for its president. The English College of Surgeons, which received its Charter in 1800, had last year gone to Leeds for its president, and there had selected an Irishman, who was also a Fellow of the Irish College. In Irish medicine and surgery there was, he believed, no north and south; latitude and longitude were abolished. He hoped that in the President's year of office this benevolent union between North and South would tend to dissipate prejudice in the interest of their native land. Mr. T. E. Gordon, Vice-President of the College, proposed the toast of Prosperity to Ireland. No doubt, he said, the medical profession had great difficulties at the present time, but it had the advantage, which many had not, of a united Ireland. For their boundary as a scientific body they must look to the limit of civilisation. Among other speakers were Mr. R. W. Livingstone, Vice-Chancellor of the Queen's University; Dr. D. Coffey, President of University College, Dublin; Sir Thomas Myles, Sir Arthur Chance, Mr. Blanche, Consul-General of France, and Dr. Bethel Solomons, Vice-President of the Royal College of Physicians of Ireland.

PARIS.

(FROM OUR OWN CORRESPONDENTS.)

Substitute Flour in Bread.

IN November last the Académie de Médecine went into the question of using substitute ingredients in bread-making. A special commission was appointed and has now reported that the use of such flours as those prepared from rice, maize, and manioc has drawbacks which are not counterbalanced by any economy; it should therefore be given up. Naturally this report has evoked protest from colonial importers, in spite of which the Académie has adopted the following resolutions. The addition of regular substitutes is without danger to the public health, but substitute flours alter the quality of bread if they are used in a proportion of more than 5 per cent. In order to maintain a high standard of quality and economical production it is desirable that the supply of flour for bread-making should be regulated over a period of, say, five years. During this time the extraction of flour from wheat should be fixed at as high a level as possible, and it may be necessary to arrange a scientific investigation of the methods adopted by the millers. At least 10 per cent. of rye-flour should everywhere be compulsorily added to wheat-flour. Where local conditions make it desirable sarrazin-flour (buckwheat) may be substituted for rye, but all the unsuitable flours, such as rice, manioc, and maize, should not be employed.

Protection of Infants against Tuberculosis.

During the last three years Weill-Halle and Turpin, of Paris, have been attempting premunisation of infants against tuberculosis by injections of B.C.G. vaccine. This vaccine consists of an attenuated culture of tubercle bacilli, and, as recommended by Calmette and Guérin, is usually given by mouth a few days after birth. In the present series of cases the children all belonged to infected families and had not had the benefit of this early protection, and the following method was accordingly adopted. After it had been ascertained that the child was not infected a single subcutaneous injection was given, varying in quantity from a quarter to one milligramme. The effects of this injection were very mild. A local reaction occurred about the third week, ending in a small cold abscess which later drained itself and healed spontaneously. The tuberculin skin reaction became positive in two or three months. It may be concluded from these first attempts that this new method is harmless; it remains to be seen what is the minimal

efficient dose and what are the relative advantages of ingestion and injection.

The Sick should be Fed.

An original communication has recently been made to the Société de Thérapeutique by G. Leven, of Paris, who considers that the first duty of a doctor should be the nourishment of his patient. In dealing with disease, whether acute or chronic, the rôle of food is infinitely more important than that of drugs. Often starvation causes symptoms which are wrongly imputed to the malady; it makes illness worse and complicates or prolongs the time of convalescence. In some cases—for example, gastric ulcer or the vomiting of acidosis—it is customary to stop all feeding by the mouth. Leven, however, considers that it should be continued, for it has from every point of view a beneficent influence, and is much more satisfactory than nourishment by the rectum, which has many, and often serious, inconveniences.

Habit in Disease.

Charles Fiessinger, of Paris, points out that habit is important in the manifestations of disease, just as it is important in mental processes. The picture of the illness remains after its real cause has gone away. Sometimes a permanent slow pulse, which has had its origin in an acute attack, or again, an albuminuria following infectious nephritis, will clear up as if by magic when confidence is restored to the patient. In all chronic disease custom plays its part, and after the turn of the illness it is difficult to get rid of it. An emotional shock, such as can be produced by a doctor's emphatic pronouncements, may sometimes work the miracle, and sudden improvement may occur in face of apparently formidable disease.

Regulation of the Production and Sale of Vaccines.

Nowadays there are many and various kinds of microbic vaccines, and it is astonishing that so many remedies should be put on sale without restriction either as to distribution or mode of employment. The only real guarantee which exists in France is that the laboratories which prepare them must have secured a special licence. In a recent paper read before the Académie de Médecine G. Petit pleads for rigorous control, laying down rules and regulations which should govern the bacteriological and physiological analyses of vaccines, to make certain that they have been properly prepared, and that they are efficient and harmless.

Increase of Medical Students.

It might be supposed that as medical study takes longer and costs more than formerly, the number of students would be diminishing. But it is not. In 1922 the preliminary scientific certificate which every student must take before starting medicine was granted to 1349 students throughout France; in 1925 the number had risen to 1900, and last year to 2211.

Dr. Léonce-Pierre Manouvrier, who died recently, was director of the Laboratory of Anthropology and of the Physiological Department of the Collége de France. He was a member of many learned societies abroad and wrote about 150 original memoirs on anthropology, zoology, physiology, psychology, and criminology. He was born on June 28th, 1850, at Guéret (Creuse), and qualified as a doctor of medicine.

The Chamber of Deputies has passed a Bill extending to physicians, surgeons, and hospital personnel the right of compensation for accidents sustained whilst on duty.

Courses in dermatology and venereology have been arranged by Prof. M. Jeanselme at the Hôpital St. Louis, Paris, in April, May, June, and July. Particulars may be had from Dr. Burnier at the hospital.

From March 28th to April 8th there will be a vacation course at the Hôtel Dieu under the direction of Prof. M. Villaret. The subject is Modern Conceptions of Clinical Practice and the Diagnostic Use of Current Laboratory Methods.

Correspondence.

"Audi alteram partem."

POST-GRADUATE TOUR FOR SURGEONS.

To the Editor of THE LANCET.

SIR,—May I, through the medium of your columns, call the attention of the surgical profession to the proposed post-graduate tour in the United States of America and in Canada which is now being organised by the Surgical Section of the Royal Society of Medicine. It is proposed that the complete tour should last six weeks and the itinerary has already been set forth in your issue of Feb. 12th (p. 368). It has, however, been found necessary to alter the date of departure which has now been fixed for August 20th. This alteration has been made partly to avoid interfering with the end of the meeting of the British Medical Association and also for the reason that more American surgeons of eminence will, by that time, have returned from their holidays.

By arrangement with the Cunard Company the cost of the whole tour, including ocean passage, rail and other transport and hotel expenses, will be approximately £140. Travelling facilities on the same terms will be offered to wives of those taking part in the tour. Membership of the tour is open to all members of the Section of Surgery and to all Fellows of the Royal Society of Medicine on nomination by the Organising Committee. Non-fellows who wish to join must be nominated by two members of the section and be approved by the Committee.

The tour has been arranged to give surgeons in this country an opportunity of seeing the work of some of the important surgical clinics in the United States and Canada at a reasonable cost and with the expenditure of the minimum of time and personal trouble. Should the numbers exceed 100 a special train for the party will be provided and the Cunard Company will send a travelling courier. It is important that the names of those wishing to join should be in the hands of Mr. C. Max Page, the honorary secretary, 134, Harley-street, London, W.1, at an early date, as final reservations will have to be made shortly on account of the large number of Americans returning home at the time of the proposed tour. The organisers hope that this invitation will meet with an adequate response and that the members of the tour will comprise a representative body of British surgeons.

I am, Sir, yours faithfully,

V. WARREN LOW,
President of the Section of Surgery of the Royal Society of Medicine.

Harley-street, W., Feb. 19th, 1927.

ACUTE POLIOMYELITIS.

To the Editor of THE LANCET.

SIR,—The admirable papers of Dr. James Collier and Dr. F. M. R. Walshe in THE LANCET of Feb. 12th will undoubtedly be of great assistance in the clinical diagnosis of acute poliomyelitis.

The authors apparently are wedded to the idea that the disease is invariably transmitted from human being to human being, generally indirectly through a human carrier. I was glad to note that in the discussion (p. 340) on Dr. Walshe's paper, Dr. M. H. Raven (himself a patient who had recovered from the disease) stated that from his observations and experience he could not consent to the idea that dirt and flies could be left out of the question of the agencies of spread.

In the year 1911, several cases of poliomyelitis occurred in Norfolk, for the most part isolated cases, except that in the rural district of Downham three small groups of cases occurred. In the autumn of 1926 some eight cases have occurred in Norfolk widely separated from one another. There can be

no question that there is undoubted evidence of spread in many instances in institutions by human agency, but in many rural areas isolated cases of poliomyelitis occur, and one has to search for other agencies of infection: even in the multiple instances in institutions there is no evidence that enquiry was made into a possible insect carrier of infection. In a presidential address to the Eastern Counties branch of the Society of Medical Officers of Health, published in *Public Health* (December, 1914), I reviewed the possible sources of origin. Generally speaking, poliomyelitis is a *rural* disease, single cases occurring in widely separated and sparsely populated districts, without any evidence or indeed possibility of contact even with a human carrier contact of a known case. The very fact that, except in epidemic form, the disease is distinctly a *rural* disease makes it necessary to look for other than human agencies. In this connection one should look for evidence of strange illness among the lower animals, and to a biting insect which might carry infection from a diseased animal to a human being. It is possible even for a biting insect to carry the germ from a saprophytic source direct to a human being.

The first question to be answered is: Why under normal conditions is sporadic poliomyelitis more a rural than an urban disease? In every case of poliomyelitis which I have investigated I have made special observations as to the evidence of any biting insect and have in every instance found evidence of existence in the neighbourhood of the biting stable fly — *Stomoxys calcitrans*. I find that Rosenau, of New York, has this fly under suspicion. The second question to be answered is: Why does the disease generally attack young children? The third question is: Why is the disease generally seasonal, being limited, as a rule, to late autumn and summer?

An answer to the second question—bearing in mind the generally infrequent and sporadic nature of the disease—is that during the warmer months children are generally clad in shorts, leaving their bare legs and arms more assailable to the bites of insects. An answer to the third question is that all insects breed most numerously in the warmer months. The stomoxys breeds in warm stables and cowsheds—breeds longer than the domestic housefly and, owing to its warmer environment, resists mild frost better. Moreover, being a biting fly receiving its nourishment from the blood of living animals, it spends a large part of its existence in contact with warm-blooded animals, which is another reason why it may still be found in numbers in the late autumn when the *Musca domestica* has practically disappeared—the latter fly being very susceptible to cold. In some of the cases I have investigated the mother has known that the child has been bitten by flies. In some of the cases I have actually seen the marks of the bites. In one case a cow had died of some mysterious disease in a cow-shed about 200 yards away, and there were many specimens of stomoxys in the home.

One interesting batch of cases was recorded in THE LANCET (1913, ii., 1380) by Dr. George Jubb as having occurred on the route of travel of a baker's cart. Dr. Jubb thought children might have been bitten by vermin from the donkey which drew the cart. Surely a more probable biting insect was the horse-fly or stable-fly which probably in numbers teased the unfortunate steaming animal in the course of his round and regaled themselves with an occasional meal from the legs and arms of the children in shorts in the various villages at which he stopped.

Mr. R. C. Elmslie, as an orthopædic surgeon, naturally has to deal with a large number of cases of poliomyelitis. He states that a large number of these cases are not parts of epidemics but isolated cases. Would not such cases be likely to be the occasional victims of a biting infected fly? Dr. Raven reminded members of the Medical Society that macerated flies had been proved to be capable of infecting monkeys. A little more detail of these experiments is required. Anderson and Frost fairly definitely proved by experiments on monkeys that infection of poliomyelitis could be conveyed by stomoxys. Mr. P. B. Roth described in THE LANCET (1913, ii., 1378) an interesting small epidemic of six cases in five small villages, the only common factor to all being the proximity of stables and cattle yards. A disease resembling poliomyelitis has been recorded as occurring among horses. A horse or donkey trailing a tradesman's cart accompanied by pestering biting flies might easily carry an infected stomoxys from village to village and thus explain sporadic cases within a limited area; for many a human being including myself can personally testify to the vicious biting propensities of this fly.

I am, Sir, yours faithfully,

J. T. C. NASH, M.D., D.P.H.,
County Medical Officer for Norfolk.

The Shirehouse, Norwich, Feb. 16th, 1927.

OPHTHALMIC BENEFIT.

To the Editor of THE LANCET.

SIR,—You may remember that some months ago there was a considerable extension of what is known as "ophthalmic benefit" under the National Health Insurance Acts. Previous to this the various "Approved Societies" assisting in the administration of the Act granted what was known as "optical benefit"; this, in practice, meant that they were prepared to pay up to a certain amount for spectacles made by opticians, the question whether the glasses were prescribed by the optician concerned or by an ophthalmic surgeon being of no interest then to the Approved Societies.

Recently the Ministry of Health has sanctioned the Approved Societies giving what is now termed "ophthalmic benefit," where the societies have funds available for the purpose. Under this scheme the societies pay the ophthalmic surgeon a fee of one guinea for an examination of the insured person's eyes, the surgeon prescribing glasses if required, the prescription being taken to the optician and made up with the same proviso for part payment of the optician's charges as before. I am informed that about a third of the Approved Societies have adopted this scheme of ophthalmic benefit, the remaining two-thirds still giving only optician's benefit.

The modus operandi for the insured person to get this benefit is first to apply to his society for an ophthalmic benefit form; this he takes to his panel doctor who signs it, certifying either (1) that the services of an ophthalmic surgeon are essential, or (2) that he should go to an optician. The patient sends the completed form to his society, who then issues a letter telling him to see an ophthalmic surgeon, and either gives him the name of a particular surgeon to be seen or gives him several of surgeons living in his neighbourhood. The onus is thus on the panel doctor of deciding whether the services of an ophthalmic surgeon are necessary, or to put it bluntly, he is expected to see that cases of cataract, glaucoma, or new growth are not sent to opticians for treatment.

I gather that the societies that do *not* give "ophthalmic benefit" but only pay for spectacles, take the view that in the majority of cases the services of an ophthalmic surgeon are unnecessary and that an optician can do all that is needful. With this view I am inclined to agree. The vast majority of eye patients require glasses only. When they consult opticians I would go so far as to say that the opticians in 80 per cent. of cases prescribe correct glasses and give their patients satisfaction. Probably 15 per cent. of patients get glasses sufficiently good for the purpose, but which might be improved by an ophthalmic surgeon. The balance of 5 per cent. have some ocular disease, and my experience is that opticians generally refer these cases to hospitals. In spite of a letter in your columns a few weeks

back I think that the *real damage* that can be done to the eyes by unrestricted prescribing by opticians is extremely slight, practically the only risk being that a case of rise of tension in the eye from whatever cause might go undetected. Now, after all, glaucoma is not a very common disease and would probably be detected by the patient's panel doctor before he went to the optician.

These views may sound heretical to some, but I think that the majority of ophthalmic surgeons will agree with me as to their correctness. For doing this ophthalmic work the Ministry of Health devoluted to the British Medical Association the privilege of compiling a list of ophthalmic surgeons who would be willing to examine National Health Insurance patients for a fee of one guinea. Practically all the ophthalmic surgeons in England are on the list. They are about 600 in number, of which about 100 are in the area of London and its surrounding suburbs.

Why the Ministry of Health handed the formation of the list (now known as the "Ophthalmic Panel") to the British Medical Association I do not know. However much one approves of the Association—and I do thoroughly approve of its activities—one cannot help feeling that it was undesirable for the Government to hand over this function of forming an ophthalmic panel to what, after all, is a private organisation banded together for the mutual benefit of its members. Human nature being what it is, non-members of the British Medical Association will always feel that members of that body will "have a pull" in getting on to the ophthalmic panel. It would have been much better for the Ministry to have retained the formation of the ophthalmic panel in its own hands.

Concerning the personnel of the ophthalmic panel, there are men on it who, some may say, have not sufficient experience and knowledge of eye work to justify their inclusion. There is a real danger, especially at first, that if inexperienced men get on the ophthalmic panel it will bring it into contempt and disrepute. My feeling is that no man should be on the ophthalmic panel unless he is on the staff of an eye hospital in a senior or junior capacity, or on the eye department of a general hospital or in charge of a school clinic. There are men on the panel who have held junior eye appointments years ago, but now hold no post bringing them into touch with eye work. These men are not good enough for the responsibility and they have no opportunity of keeping abreast with the times.

The ophthalmic panel consists of a list of names and addresses of doctors and nothing more. It is not on sale to the public, but the British Medical Association has supplied copies to all the Friendly Societies. From this document the officials of the societies have no means of knowing anything about the position and status of the medical men on it, unless they refer to that excellent non-official publication the Medical Directory. In fact, the list is about as much use to the ordinary man as that list of 4000 members that the Stock Exchange so kindly supplies one with if one wants the name and address of a good stockbroker. I suggest that when the next list is published, the ophthalmic appointments actually held at the present time by its members should be included something after the style of the Medical Directory. A point to be considered is whether the list of names of members of the ophthalmic panel should be available to the public in the post offices as is the case of the ordinary panel. Some of the leaders of our profession might consider it savour of undue advertising, others might think it excellent health propaganda.

It is a question in my own mind whether ophthalmic benefit would not be much better administered by some such scheme such as the following:—

The patient interviews his panel doctor and requests a certificate to go to an optician. This interview with his doctor would exclude cases of gross eye disease being untreated and should exclude cases of chronic glaucoma being missed. The optician when he sends his bill to the society should give a certificate that the patient with the new glasses gets normal vision (6/6 Snellen with each eye, and Jaeger No. 1 for reading, or whatever standard is agreed on). If the case does not get normal vision, the patient should be referred to an ophthalmic surgeon, with the proviso that any glasses prescribed should be made by the original optician.

This scheme should satisfy the societies who now feel that many cases are sent unnecessarily to ophthalmic surgeons. It should satisfy the opticians who know that they are inclined to lose cases if an interview with an ophthalmic surgeon is not properly safeguarded as above. Lastly, and most important of all, the patient would feel that his eyesight was being properly looked after without his time being wasted with unnecessary interviews with ophthalmic surgeons.

The point that it is wished to emphasise is that the man in general practice may not know much about the prescribing of spectacles (and the optician from long experience does this pretty well). But that does not mean to say that he (the practitioner) knows nothing about diseases of the eye. One feels that he is not given enough credit for the amount of ophthalmic knowledge that he does possess.

I am, Sir, yours faithfully,

ADRIAN CADDY, M.D., F.R.C.S.

Upper Wimpole-street, W.

*** Mr. Caddy's frank letter brings to our mind certain difficulties in connexion with any official recognition of the prescribing optician, and in other directions will invite different opinions from those which he has expressed. The chief danger in the ophthalmic panel, that men not competent for the work may undertake it, is a fact, but there is a sub-committee in existence to decide whether or not a name is to be inserted on the panel, and this body is fully alive to the position.—ED. L.

POST-OPERATIVE FACIAL PARALYSIS.

To the Editor of THE LANCET.

SIR,—On p. 392 of to-day's issue I am reported as saying that the possibility of facial paralysis makes me hesitate before performing a labyrinthectomy. Labyrinthectomy is a serious operation; the risks to be considered are those involving the patient's life, and purely cosmetic considerations have no place among the indications for the operation. I should never allow such a trivial complication to influence my decision that the labyrinth should be removed. What I actually said was that the cases in which I had had to do a labyrinthectomy (as distinct from simply the radical mastoid operation) had provided my opportunities for observing the course of post-operative facial paralysis.

I am, Sir, yours faithfully,

E. WATSON-WILLIAMS.

Clifton, Bristol, Feb. 19th, 1927.

THE BLOOD-GROUPS OF IDENTICAL TWINS.

To the Editor of THE LANCET.

SIR,—Dr. G. P. Crowden's interesting analysis of the physical characters of a pair of identical twins in Guy's Hospital Reports raises another point of practical importance in addition to the question of their finger-prints already discussed in your columns. I had always supposed on theoretical grounds that a pair of identical twins were likely to belong to the same blood-group, and that it should be possible always to use one of the pair with perfect safety as a blood donor for the other. Dr. Crowden's twins both belonged to Group IV. (Moss) and so seemed to conform to the theoretical requirements. I have recently, however, had the opportunity of putting this point to the test in practice with the opposite result. Being called upon to treat by transfusion

one of a pair of twins who was suffering from septicæmia, I naturally turned to his brother for the necessary blood. I applied the usual test and found that the patient and donor belonged to Groups II. and IV. respectively. I was thus able to use the healthy twin as donor, but a demonstration had been afforded that the blood even of identical twins cannot be regarded as interchangeable. The twins in question were undoubtedly to be regarded as "identical" in the usual acceptation of the term. They resembled one another so closely that for many years they had been employed on the stage as an essential ingredient of certain well-known "mysteries."

I am, Sir, yours faithfully,

London, Feb. 20th, 1927. GEOFFREY KEYNES.

"SONNE" DYSENTERY IN GREAT BRITAIN.

To the Editor of THE LANCET.

SIR,—The last two issues of THE LANCET have contained references to the occurrence of cases of dysentery in Great Britain. That of Feb. 12th reports a note by Dr. Robert Richards on "Some Cases of Dysentery in Aberdeen," including an interesting case that was operated upon for intussusception on account of a history of a tumour having been felt, and which turned out to be a case of dysentery. In his paper Dr. Richards states that the latest figures for Britain, for the supposed causal relationship between the dysentery bacillus of Flexner and infantile diarrhœa are my own, and that "I had found dysentery bacilli in 13 cases out of 150 treated in the Hospital for Sick Children, Great Ormond-street."

In THE LANCET of Feb. 19th Dr. F. H. A. Clayton reports a case of Sonne dysentery in England, and he adds that the Sonne bacillus had not been met with in England until Dr. Channon in 1925 obtained it from a man who had had dysentery in Egypt previously. I should like to be permitted to make a few observations upon these two interesting papers, because I believe that dysentery is much more prevalent amongst the general population than is generally recognised.

At the January meeting of the Pathological Society of Great Britain I read a paper on some observations I had made on the Sonne dysentery bacillus and the *B. coli anaerogenes*. As a result of investigations I have been carrying out over several years, I have come to the conclusion the organisms I isolated in 1921 from a considerable number of cases of epidemic diarrhœa and other forms of diarrhœa which occurred during that year, which in former publications I have called *B. coli anaerogenes*, are really the same organisms as Sonne isolated from some of his cases of dysentery in Denmark. Moreover, the organisms described by Dr. J. Bamforth in London, Dr. R. Cruickshank in Glasgow, and others, as occurring in cases of ileocolitis and similar conditions are also the Sonne bacillus.

With regard to my figures quoted by Dr. Richards —namely, "13 cases in which dysentery bacillus was isolated out of 150 cases studied," may I point out that of those 150 cases only 107 were examined bacteriologically? To this number, however, must be added the 25 cases in which I isolated the *B. coli anaerogenes*, and which must now be regarded as the Sonne type of dysentery, giving a total of 38 cases out of 107 (35·4 per cent.) examined bacteriologically in which dysentery bacilli of one or other type were isolated.

There are several other points I could refer to in connexion with the prevalence of dysentery in this country, but as I intend to write a paper upon this subject shortly I shall be content to leave the matter here for the present.

I am, Sir, yours faithfully,

DAVID NABARRO.

Harley-street, W., Feb. 22nd, 1927.

THE CASE OF COLONEL KYNASTON.

To the Editor of THE LANCET.

SIR,—Your report of the withdrawal by the Public Prosecutor of the summons charging me with having "illegally, wilfully, and falsely used the descriptions M.R.C.S. Eng., and L.R.C.P. Lond." gives the impression that it was due to the quashing of my conviction under the Drug Act.

This gives a totally false impression. The summons was withdrawn after I had pointed out to the Public Prosecutor that the Royal Colleges had no statutory power to cancel their diplomas and that consequently their by-laws were of no legal effect.

I am, Sir, yours faithfully,

JOHN KYNASTON, Lt.-Col., M.R.C.S. Eng., L.R.C.P., Lond., late R.A.M.C.

Chepstow Villas, W., Feb. 15th, 1927.

Obituary.

SIR JOHN UTTING, M.R.C.S. ENG., L.R.C.P. EDIN.

Sir John Utting, who died last week, was a prominent figure in the corporate life of Liverpool. At the age of 75 he was still active not only in the interest of the city's health, but also, and even more conspicuously, in the management of the city's finances. Born in Norfolk, Dr. Utting qualified in London at the age of 22, and was at one time editor of *Guy's Hospital Gazette*. For three years he travelled abroad as a ship's surgeon and then, going to Liverpool, settled in a practice which before long became a large one. At an early period he interested himself in public health, though it was not till 1899 that he gained a seat on the city council. There he speedily made his mark, and for 20 years served as chairman of the port sanitary committee; as a memorial to his work there remains the large isolation hospital at Fazakerley. His influence was largely felt in the coördination of the work of the university, the city analyst and the city bacteriologist, in so far as they bore upon public health matters, and the combined Public Health Institute at Liverpool is symbolical of the partnership which was eventually attained. Perhaps, however, it was as a financial expert that Sir John Utting made his deepest impression upon the mind of the average citizen. In 1919 he was made chairman of the finance committee of the corporation, and his budget speeches became famous for their clarity and the conviction they carried. Under his régime corporation stock stood high. A ready and forceful speaker, he was a master of the art of handling an audience, and deep convictions seemed to lie behind all that he said. "His was a kindly nature," writes a colleague, "and in later years his fine presence and strong though friendly features made a picture hard to forget. Undoubtedly a great intellect has been lost and one of those sterling characters that are so ill to replace."

Sir John Utting leaves a widow, two sons and one daughter.

JOHN FLETCHER PORTER, C.B.E., M.B. LOND., J.P.

ON Feb. 17th Dr. J. F. Porter died at Hackney at the age of 54. The son of the Rev. J. F. Porter, he was born in Canada and educated at York, Leeds, and the London Hospital. He qualified as L.S.A. Lond. in 1897, and in 1901 was appointed medical officer to the London County Council. For many years he carried on a large general practice in the East End, but he managed to combine this with a good deal of special work. In 1913 he was appointed medical referee to the London Insurance Committee, and later served the approved societies in the same capacity. In the following year he became a member of the Special Medical Board on Functional Nervous Diseases and Epilepsy, and in 1917 took up work as Deputy Director of Medical Services under the Ministry of Pensions.

He made himself an authority on medico-legal questions and especially on the subject of workmen's compensation and functional nervous disease. Outside his medical work Dr. Porter was a well-known Freemason and a magistrate for the County of London, sitting for the Tower Division. He married, in 1901, the second daughter of the Rev. T. H. Richards, and she survives him with two daughters.

GEORGE ARTHUR PHILLIPS, M.R.C.S. ENG., J.P.

Dr. G. A. Phillips, who died on Feb. 18th at his home in Streetly, was born in 1849, and was one of the oldest practising doctors in the Midlands; he was also one of the most active. In the early 'seventies he settled in Walsall, where he soon became a leading man. His unusual charm of manner attracted patients from all classes, whilst his keen professional knowledge caused many of his neighbouring colleagues to seek his aid in a consultant capacity. For many years he was senior surgeon to the Walsall Hospital, and he became president of every medical society in the district. At the time of his death he was the senior magistrate on the Walsall bench, and chairman of the licensing committee. Some years ago Dr. Phillips gave up his own practice, but he continued to act as a locum tenens for one or other of his many friends, and, though well over 70, got about on a bicycle better than many far younger men. "Until quite recently," writes a colleague, "it seemed that he had learned the secret of perpetual youth, for he was a man who never appeared tired. Always about, always on the very top of his work, he set a fine example to his juniors. He was a splendid specimen of the old-fashioned family doctor—the friend and kindly counsellor of his clients."

Dr. Phillips qualified in 1870 from St. Bartholomew's Hospital, and before settling in practice held house appointments both there and at other institutions.

WILLIAM JAMES CAIE, M.B., CH.B. ABERD., J.P.

Dr. W. J. Caie, who died at Edinburgh on Feb. 6th, was a prominent citizen of Bury St. Edmunds and was mayor of the town from 1923 to 1925. The son of the Rev. W. S. Caie, of Enzie, Banffshire, he was born in 1874 and was educated at Fochabers Public School, at the University of Aberdeen and at the Coombe Hospital, Dublin. Before graduating in 1900 he acted as prosector in anatomy at Aberdeen University, and on taking his medical degrees was appointed to the resident staff of the Aberdeen Royal Infirmary. After a short period abroad as medical officer to a Union Castle liner he settled in practice in Bury St. Edmunds. A very busy professional life followed, in the course of which, however, Dr. Caie found time for much work on behalf of the town. He sat on the Council from 1907 until his death, and was an active member of the education committee. As a practitioner he was especially interested in midwifery and gynæcology, and contributed a considerable number of articles to medical journals. He also wrote on other subjects, but his chief recreation was music, of which he was very fond. As a musician, both violinist and singer, he took a share in the social life of the town, and he was chairman of the Bury Operatic Society. A Freemason and a keen gardener, Dr. Caie was a man who had many interests in common with his fellow-citizens, and he threw himself into all his undertakings with energy and enthusiasm. During the late war Dr. Caie served with the 1st East Anglian Field Ambulance from 1914 to 1916, and held rank as major, having for some years been a Territorial officer. He married in 1906, the eldest daughter of Dr. C. S. Kilner, his partner in practice. His widow survives him and he leaves two sons and two daughters.

REBUILDING OF DONCASTER INFIRMARY.—The Doncaster Collieries Association have promised £25,000 to the building fund of the new Doncaster Infirmary "conditionally on the cessation of the outside agitation which has held up the building scheme."

MIGRAINE.

DISCUSSION AT THE ROYAL SOCIETY OF MEDICINE.

A MEETING of the Section of Medicine was held on Feb. 22nd, Dr. HUGH THURSFIELD, the President, being in the chair.

Dr. C. P. SYMONDS opened a discussion on

MIGRAINE

by pleading for a clearer definition, and remarking on the lack of addition to the knowledge of the subject since Liveing's description in 1873. This lack of progress was partly due, he thought, to faults in the technique of observation and the tendency to include in the term "migraine" any obscure form of recurrent headache. Recent work had detached from the general "migraine-headache" group those due to head injury and sinus disorder, but many varieties still awaited proper classification. The term "migraine" should be reserved for that type characterised by "a liability dating from early life to recurrent attacks of headache, which are at one time or another associated with a characteristic visual or sensory disturbance and are frequently accompanied by nausea or vomiting."

The outstanding ætiological factor of migraine so defined was heredity. Of precipitating causes the first was mental stress and fatigue. Others were subject to much diversity of opinion. Various dietetic factors had been indicted: fat, sugar, protein, acidosis, alkalosis, and blood cholesterin. But the clinical data supporting these theories were meagre or unsatisfactory and the biochemical observations had been few. The occurrence of gastro-intestinal disturbance in the early stages of an attack could not be taken as evidence of gastro-intestinal origin. Eyestrain was rarely an important cause.

Symptoms.

The visual and sensory disturbances were worth studying for the light they threw on diagnosis and pathology. The true fortification spectrum with homonymous defect was rare; simple defect with or without vague flashings was more common and might vary from mere dimness to complete loss. It was usually a vertical homonymous hemianopia, sometimes definitely quadrantic, sometimes bilateral, but usually restricted to a part of the field which could be accurately described by the patient. Transverse hemianopia, transient central scotoma, and monocular blindness might occur. All the disturbances were rapid in onset and recovery. The sensory phenomena were distinguished from those of sensory Jacksonian epilepsy by the slow spread (10–30 minutes) and by the fact that tingling of lips and tongue was always bilateral, and that both hands might be involved but rarely both legs. If the right hand was affected there might be some aphasia. Sensory and visual disturbances usually occurred apart from each other and before the onset of headache; they might occur without the pain, or be associated with only a small proportion of the patient's headaches. The preliminary warning sometimes took the form of a peculiar sense of lassitude, or even of well-being, the day before the attack. The headache was throbbing, splitting, or bursting, often on the side opposite to the hemianopia but nearly as often bilateral. Vomiting might be the predominant feature, especially in children, in whom many attacks of "cyclical vomiting" seemed to be precursors of migraine. Attacks usually began early in the morning. Dr. Symonds reviewed the symptoms from the point of view of their cortical localisation. This would not, however, stretch to include unilateral scotoma or blindness. He doubted whether cases where these phenomena occurred were true migraine; he had not found a well-documented instance.

He concluded, therefore, that the situation of the disturbance lay in the cerebral cortex, particularly

in those parts in which vision and sensation are represented, and that the disturbance was often bilaterally symmetrical.

Migraine due to Local Vascular Spasm.

The nature of the disturbance was a matter of analogy, and the theory of vascular spasm was the most probable and offered the best explanation of the order of the visual phenomena and the symmetry of the disturbance. Raynaud's disease provided a striking analogy, and the two conditions often occurred in the same patient. He found it difficult to accept DuBois-Reymond's theory, that the arteries were in a state of painful tetanic contraction comparable with cramp, since the visual disturbance usually preceded the sensory or might occur independently. The analogy with "blue" Raynaud's disease was more satisfactory, local asphyxia leading to local œdema. A very small swelling in the brain gave rise to severe pain. Such a sequence might well lead to local hæmorrhage, and examples of migraine during subarachnoid hæmorrhage had been recorded. Retinal vascular spasm had been observed with the ophthalmoscope during attacks of migraine. Such paroxysmal constriction was probably a purely local disturbance of function in the vessel walls due to some chemical substance in the circulation or functional defect in the muscle. Howard Florey had shown that stimulation of the cervical sympathetic trunk and vasoconstrictor centre would not affect the cortical vessels.

Treatment.

Since the disease was hereditary it was not possible to speak of "cure." Régime was the most important factor in diminishing the frequency and severity of the attacks. Luminal and liquor trinitrini were of undoubted value and were worth trying alternately. Often the patient found out how best to treat himself in an attack or how to avert it. Aspirin and rest might induce sleep and relief, or a good meal with a glass of wine might stop the headache.

Two lines of investigation should be pursued: (1) the effect of various chemical substances upon the cortical vessels, and (2) the clinical and biochemical features of cases of true migraine should be recorded before, during, and after an attack.

The CHAIRMAN described a peculiarly severe case of long-standing migraine in a medical colleague. The symptoms were ocular disturbance to complete blindness, partial right-sided paralysis, and mental confusion. The headache could be relieved by phenacetin. This was confirmed as migraine by several other observers. He could not see how vascular spasm could be as localised as it must be were it the mechanism of the attack.

The Importance of Eyestrain.

Dr. A. HURST disagreed profoundly with Dr. Symond's dictum that eyestrain was an inconsiderable factor. On the contrary, it was the most important cause of that fatigue of a brain centre which determined the attack, and in some cases was the only cause. The reason for its lack of recognition was that only exceptionally careful oculists noticed it, for the slightest astigmatism or lack of muscle balance could be of great importance. Glasses, too, needed adjustment from time to time, as accommodation varied with many factors, including health. Biochemical examinations of migraine subjects showed a perplexing normality, but X rays revealed that during an attack the stomach ceased entirely to act. It was important to recognise how many aberrant types there were. He had seen cases that had been operated on for all sorts of supposed conditions.

Dr. F. W. COLLINGWOOD said that he was subject to migraine and had never found the attacks precipitated by reading, but they were worst after exciting debates, especially political ones.

The Family Physician's Point of View.

Dr. J. L. MORTON stressed the importance of hunting for the exciting cause, however "idiopathic" and "causeless" the attack might appear. "Spontaneous actions did not occur in Nature." The family physician saw the emergence of migraine during child life, when its alarming acute bilious attacks might even be mistaken for appendicitis. Very irregular cases were encountered and the collateral symptoms were worth knowing. Eyestrain was, in his opinion, the most important liberating stimulus, and not all first-class oculists were equally successful in finding the small error of muscular balance which might be present. Uterine and menstrual disorders, especially displacements, intestinal stasis, appendicitis, goutiness, and sluggish action of the liver might precipitate attacks. Headache was by no means the only symptom. It might be preceded by itching of the scalp for several days, by abnormal hunger, by a feeling of buoyancy or depression, or by a habit of awakening earlier each morning. A dose of calomel or salts might avert or mitigate the attack. After the headache there were also many easily misunderstood symptoms; the correlation between belly and brain was particularly well illustrated by migraine. Anorexia, unaccountable sickness, and nausea—even cardiospasm—might be central in origin and due to vagal disturbance from a migrainous brain. The patient was not always better when the headache passed off with advancing years, as these gastro-intestinal troubles often remained and glycosuria or arterio-sclerosis might appear.

The Relation of Migraine to Asthma and Hydrocephalus.

Mr. F. COKE quoted cases associated with asthma, and remarked that skin tests were of no use except on the day when the patient was going to have a migraine attack.

Dr. E. A. CARMICHAEL supported the theory that migraine might be due to an internal hydrocephalus due to a turgescence of the choroid plexus, blocking one or both of the foramina of Monro. Migraine might be described as a slow form of epilepsy. Some autopsies had supported this theory.

Dr. J. KINGSTON BARTON said that migraine was undoubtedly mixed up with inherited gout; he regarded it as probably due to some material travelling in the blood until it had been eliminated by the intense polyuria which always ended the attack. The effect produced on the patient was that of having temporarily no kidneys. The vasomotor constriction probably involved not only the brain but all parts of the body, which would account for the contraction of the stomach recorded by Dr. Hurst and for the renal condition. The precipitating cause must involve some dietetic question.

Dr. W. R. REYNELL said that when the problem of epilepsy was solved we should know more about migraine. He quoted cases showing the correspondence between the two conditions.

Dr. J. A. RYLE said that the common factor of inheritance was the reason why epilepsy, migraine, asthma, and gout were all incurable. There was some diathesis in all of them, some sensitiveness which could be fired off by several triggers and which could only be eradicated by a process of breeding. They were not diseases, they were diatheses. He recalled Lauder Brunton's observation, in his own attacks of migraine, of the constriction and hardening up of his superficial temporal artery.

Dr. H. W. NOTT described the remarkable effects of the thyroid-manganese treatment in asthma and epilepsy.

Dr. AGNES SAVILL quoted the experience of a migrainous family whose members found that the attacks could be arrested by salts or sodium salicylate; they could not, therefore, be entirely due to eyestrain.

Dr. P. MACBRIDE said he was convinced migraine was an allergic disease, although no doubt eyestrain was a factor in its production. A very large

number of people had errors of refraction, but very few of them had migraine. Cases should be investigated on these lines, with an inquiry into the family history and a blood count for leucopenia.

Dr. SYMONDS, in reply, said that he thought much of the difference of opinion was due to confusion of definition. From those who stressed eyestrain he asked for careful detailed records of true cases of migraine under his definition and of their cure by the oculist's methods. He thought the attack passed over too quickly to be due to hydrocephalus, and that the absence of convulsive phenomena was the difficulty in the way of regarding migraine as a form of epilepsy.

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

A MEETING of this Association took place on Feb. 16th at the Cheshire County Mental Hospital, Macclesfield, the chair being occupied by Lieut.-Colonel J. R. LORD, the President.

Visual Imagery.

Prof. T. H. PEAR read a paper entitled Recent Investigations on Visual Imagery, with Special Reference to Hallucinations. The contribution was in two parts, the first dealing with modern experimental normal psychology, the second with modern psychopathology, and Prof. Pear said he was not aware of any writings which attempted to bridge the gap between the two. The young German investigators had been very busy on this subject since the war and some of the results were now becoming known in this country. Some people were able to vividly visualise things they had seen, such as pictures, maps, diagrams, and were seldom conscious of having mistaken the images so conjured up for the realities. Popularly, the man who mistook images for realities was insane and he who did not was not insane. But that did not suffice for a psychological definition, for dreaming was within the experience of most people. Not only in dreams but in other borderline cases the imagery was very real. And the images in a dream might be very different from the images perceived in the day-time. In ordinary everyday life, though we made a very clear distinction between our percepts—i.e., our experience of the outer world—and what were termed our images, they were interdependent. In the case of a motorist passing another motor in the night when the lights of the other car were not switched off, it was not an illusion that the driver of the first car saw the lights after he had passed them; he actually continued to see them for the visual apparatus was still functioning. There were many problems concerning a form of visual memory which was neither an after-sensation nor an ordinary visual image, and this visual memory was termed the eidetic image. It was a special memory of an object seen, which some people experienced after the object itself had been removed. It was not ordinary memory because details came out in the eidetic image which were not consciously observed in the direct examination. This merged into the region of pseudo-hallucination. To produce an after-sensation it was necessary to fix one's eyes carefully on one spot in a picture for about half a minute and then continue to fix on the spot for about 20 seconds after the picture had been removed. The after-image had not the same colours as the original. No one got the eidetic image just as in the picture; those who saw it said it fluctuated, sometimes being clear, at other times less clear. People who got the eidetic image were often those who were devoted to art; some were "unusual" people. In Germany it was found that after the fourteenth year the tendency to have these images decreased with the passage of the years unless the adult had the childish type of mind.

With regard to the relation of this happening to pseudo-hallucination, Prof. Pear gave a remarkable experience in a man who worried about his hallucinations following the war. These eidetic images might occur when the mind regressed to a more childish state, and it was an interesting question how far our modern system of education and culture had educated us out of this habit.

Dr. B. H. SHAW asked whether this eidetic memory was not the same as was spoken of as the artist's memory.

Dr. DONALD ROSS asked whether Prof. Pear had thought of investigating the auditory sphere in the same way as the visual, as auditory hallucinations were the more serious of the two.

Prof. PEAR replied that the eidetic image was not the same as the artist's memory and many artists did not have a visual imagery while they were drawing. A man who had satisfying visual images did not have the desire to draw at all. It seemed that the investigation of auditory pseudo-hallucination was an almost untilled field; these manifestations were usually regarded as grave.

Dr. K. K. DRURY read a paper on

Ultra-violet Radiation in Mental Hospital Practice.

He said that the Board of Control reported in 1925 that there were, at that time, only five installations of artificial heliotherapy apparatus in mental hospitals. He reviewed the history of the use of the photochemical action of light and discussed the relative advantages of the carbon arc, the tungsten arc, and the mercury-vapour arc. The atmospheric air-cooled mercury-vapour lamp was very suitable to the needs of a mental hospital. The general health of patients subjected to this treatment was benefited. He considered that the whole subject of dosage and skin reaction was a paradox. It was, however, found that the best results followed when the rays caused a mild skin erythema. Females usually reacted more than did males, blondes more than dark-complexioned people, and clear-skinned folk more than those with a greasy skin. There were three contra-indicating states: agitated melancholics, acute maniacs, and epileptics not only did not benefit, under the treatment, but they actually became worse. Simple melancholics, manic-depressives, and confused cases seemed to derive definite benefit from the treatment. He referred to the new glazing material, vitaglass, which allowed ultra-violet rays to pass freely, ordinary window glass cutting off most of these rays. He urged that a careful record be kept of all patients submitted to this treatment, to include weight, pulse, blood pressure, hæmoglobin content, and white cell differential count.

The PRESIDENT said he hoped this paper would provide a stimulus to other mental hospitals to set up similar installations. Horton Mental Hospital, Epsom, enjoyed the distinction of having been the first institution of the kind to adopt the treatment. Practically all cases with chronic skin diseases, ulcers, &c., in the institution were now cured of them, so that the large amount of time which had been spent in dressing these cases could now be devoted to other purposes. In the case of a nurse on the staff with a large tuberculous growth in the neck an operation had been decided on, but the light treatment in a short time had made a remarkable cure of it without.

HOSPITALS AND ACCIDENTS.—Last year Manchester Royal Infirmary dealt with 27,677 accidents, the greater number of them street accidents, and there is, consequently, serious congestion of the waiting-list. At Sheffield the Royal Infirmary and the Royal Hospital treated about 5000 motor casualties; 600 of the injured persons were in-patients, some of whom stayed for a considerable time. Here again there is a long waiting-list. The number of motor accidents dealt with at Leeds General Infirmary was 946, as compared with 768 in the previous year. It is intended in future to send accounts of the cost of treating insured patients to the insurance companies concerned.

Medical News.

SIR WM. DUNN SCHOOL OF PATHOLOGY, OXFORD.—The school will be opened by the Lord Chancellor of England, Lord Cave, the Chancellor of the University, on Friday, March 11th, at 3.30 P.M.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—In the recent examinations of the Division of Tropical Medicine and Hygiene, the Duncan Medal has been awarded to H. W. Kumm.

UNIVERSITY OF LONDON: UNIVERSITY COLLEGE.—In connexion with the Centenary Celebrations of the College, an address will be delivered by Prof. E. H. Starling on Monday, Feb. 28th, at 8.30 P.M., who has taken for his subject "A Century of Physiology." Sir John Rose Bradford will preside and academic dress will be worn.

ROYAL SANITARY INSTITUTE.—A sessional meeting will be held at the Institute, 90, Buckingham Palace-road, London, S.W. 1, on Friday, March 4th, at 5 P.M., when a conference on Public Health Meat Regulations will be opened by Mr. W. Brennan de Vine, veterinary superintendent, Birmingham. Dr. Charles Porter is amongst those who will take part in the discussion.

CAMBRIDGE GRADUATES' MEDICAL CLUB.—The annual dinner of the Club will be held at the Langham Hotel on Tuesday, March 1st, at 7.15 for 7.30 P.M. Sir Humphry Rolleston, President of the Club, will take the chair. All members of the Club are invited to be present, and all Cambridge medical men who are graduates of the University are eligible for membership. Application forms can be obtained from the honorary secretaries, Mr. R. M. Vick, of 113, Harley-street, London, W. 1, and Dr. F. G. Chandler, of 1, Park-square West, Portland-place, N.W. 1.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.—Cutaneous hyperalgesia in abdominal disease was the subject of a paper delivered at the Institute on Feb. 15th by Dr. A. R. McKerrow. Speaking of the adequate stimulus required to induce pain and hyperalgesia, he said that Mackenzie had held that since mechanical stimuli such as heat and cutting produced no sensation when applied to viscera supplied from the sympathetic system, the adequate stimulus must be provided by a vital activity, and he had considered that abnormal contraction of non-striped muscle was the source of this stimulus. Other authors had suggested increased tension or imperfect drainage of the tissues as the cause, but Dr. McKerrow pointed out that tension and obstruction were just the conditions that lead to over-activity of the muscular coat. Ligat's view that the mucosa contained the receptors for the viscero-sensory reflex was capable of a similar explanation since stimulation of the mucosa resulted in peristaltic activity. Dr. McKerrow drew attention to the cases quoted by Ligat which showed that the area of hyperalgesia was constant, no matter what displacement of the related viscus was present.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—At 5 P.M. on Thursday, March 3rd, at the rooms of the Medical Society of London, 11, Chandos-street, W. 1, Dr. Arthur Whitfield will lecture for the Fellowship on the Differential Diagnosis of Some Acute Rashes. On Tuesday, March 1st, at 3.15 P.M., Dr. R. Wade will lecture at the Royal Northern Hospital on Safety in Anæsthesia. Both lectures will be open to members of the medical profession without fee. The Brompton Hospital will hold a course from March 7th to 12th inclusive (fee £3 3s.); instruction will continue all day except Monday and Thursday and will include demonstrations in the cardiographic and radiographic departments and the wards. From March 14th to 25th a course in gynæcology will be given at the Chelsea Hospital (fee £5 5s.). A comprehensive course will be undertaken at the Royal National Orthopædic Hospital from March 21st to April 2nd (fee £2 2s.) and a course primarily for the general practitioner will be held in the late afternoon between the same dates at the London Temperance Hospital (fee £1 1s.). From March 28th to April 9th at the Queen's Hospital there will be an all-day course in Diseases of Children (fee £3 3s.). From March 28th for two weeks the Royal Eye Hospital will give a series of demonstrations on the Diagnosis and Treatment of Diseases of the Eye. The Fellowship arranges for practical courses in obstetrics and anæsthetics and also makes arrangements for clinical assistantships in gynæcology. Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

THE Wellcome Historical Medical Museum will be closed from Feb. 28th until March 14th, 1927.

MEDICAL SOCIETY OF LONDON.—The 154th Anniversary dinner will be held at the Grand Hotel, Trafalgar-square, London, W.C., on Monday, March 7th, at 7.30 P.M. Sir Humphry Rolleston, the President, will be in the chair.

THE conversazione arranged by the International Society of Medical Hydrology (vide THE LANCET, Feb. 19th, p. 415) will be held on Thursday, March 3rd, at the rooms of the Medical Society of London.

THE Mayor and Mayoress of Wandsworth will open a home for nurses at 75, South Side, Clapham Common, S.W., on Saturday next, March 5th, at 3 P.M. The home has been established by the Nurses' Fund for Nurses.

LONDON STREET ACCIDENTS.—During the last three months of 1926 there were 25,279 street accidents in London, of which 293 were fatal.

SCHOOL FOR DEFECTIVE CHILDREN IN HUDDERSFIELD.—The Huddersfield Town Council decided on Feb. 16th to build an open-air residential school for physically defective children at a cost of £8000.

LONDON NATURAL HISTORY SOCIETY.—On Tuesday, March 1st, at 6.30 P.M., Major E. E. Austen, deputy keeper of the department of entomology of the British Museum, will lecture on Tse-tse Flies and their Significance to Tropical Africa. The lecture will be given in Room 40, Winchester House, London, E.C., and visitors will be welcome.

PATHOGENESIS AND TREATMENT OF SCIATICA.—By invitation of the authorities of the University of Liverpool, Prof. Vittorio Putti, professor of orthopædics in the University of Bologna, will deliver the Lady Jones Lecture on Thursday, March 10th, at 4 P.M., in the Surgical Theatre of the Medical School, his subject being New Conceptions in the Pathogenesis and Treatment of Sciatica. The lecture will be open to members of the medical profession.

NEW CONVALESCENT HOME FOR MINERS.—In the course of a few weeks a convalescent home for South Yorkshire miners will be opened. Low Hall, situated at Sealby, near Scarborough, has been acquired for the purpose, and with the alterations and additions will cost £13,000. A sum of £60,000 has been invested to provide for its maintenance and upkeep. Residents will be admitted on April 4th. It is proposed to start with 30 residents per week, making a stay of two weeks each.

POST-GRADUATE FACILITIES IN MANCHESTER.—Active preparations are being made in Manchester for medical courses under the control of a special post-graduate committee of the Board of the Faculty of Medicine of the University. The first of these will commence in September of this year and the prospectus will be issued at an early date. It is hoped to attract to these medical men from outside districts, for many of them will be whole-time courses. In the meantime the individual hospitals of Manchester are carrying on series of lectures specially suitable for local practitioners. The Consumption Hospital is in the middle of a course and the St. Mary's Hospitals have a course from Feb. 18th to April 8th. The Royal Infirmary commences its usual series on Tuesday, March 1st. Lectures will be given on this and succeeding Tuesdays till the end of May and on Fridays, March 4th to May 27th. Cases will be demonstrated in the wards. Details may be had from the post-graduate secretaries of the respective hospitals.

SEAMEN'S HOSPITAL SOCIETY.—On Feb. 21st Prince George presided over the annual court of governors of the Seamen's Hospital Society in the place of his brother, the Duke of York, the President. As usual this meeting was very largely attended, nearly a thousand people being present. It was pointed out in the annual report that the Society's work for the sailor is well known, but it is not so often realised that it does much to facilitate the study of tropical medicine; it was in the wards of a branch of the Society in the Albert Dock that Sir Patrick Manson brought to the notice of the profession the need for a centre of investigation and study of diseases peculiar to hot climates. Sir Burton Chadwick, Parliamentary Secretary of the Board of Trade, moved the adoption of the report and acknowledged the services rendered by the Society to the community, and especially to the sailor. He also dwelt upon the clinical aspect of the six establishments of the corporation, speaking of the unusual types of patient and the unusual diseases from which they suffer. Dr. C. E. Sundell, senior physician of the Dreadnought Hospital at Greenwich, in moving the vote of thanks to Prince George for presiding, expressed appreciation of the fact that the first public utterances of the Prince should be in the cause of hospitals.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Sale of Food and Drugs Bill.

IN the House of Commons on Wednesday, Feb. 16th, Mr. JACOB presented a Bill to amend the Sale of Food and Drugs Acts, 1875 to 1907, which was read a first time.

On Monday, Feb. 21st, the Sale of Food and Drugs Bill was read a second time and committed to a Standing Committee.

Poor-law Emergency (Scotland) Bill.

On Tuesday, Feb. 22nd, the Poor-law Emergency (Scotland) Bill was read a second time in the House of Commons and committed to a Committee of the whole House.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 16TH.

Tuberculosis in the Navy.

Sir PARK GOFF asked the First Lord of the Admiralty the number of sailors discharged from the Navy in 1926 suffering from tuberculosis; and how many of those men were granted disablement pensions.—Colonel HEADLAM (Parliamentary Secretary to the Admiralty) replied: The number of men so discharged was 197. Of these, six were found to be attributable to the conditions of service and pensions on the attributable scale were awarded.

Tuberculosis in the Army.

Sir PARK GOFF asked the Secretary of State for War if he would state the number of soldiers discharged from the Army in 1926 suffering from tuberculosis; and how many of these men were granted disablement pension.—Captain D. KING (Financial Secretary to the War Office) replied: The number of soldiers discharged from the Army during 1926 on account of tuberculosis was 222, of whom 64 were awarded disability pensions and 84 were awarded non-attributable gratuities.

Pensioners with Valvular Heart Disease.

Mr. BECKETT asked the Minister of Pensions whether he was aware that organic heart disease, such as valvular disease, did not usually affect men until middle age; that a man contracting this disease under 30 years of age might be a complete invalid at 45 years of age; and whether he would consider amending the Pensions Warrant to cover young men who contracted valvular disease of the heart as a result of war service and were not incapacitated until more than seven years after discharge.—Major TRYON replied: I am medically advised that it is most improbable that a young man contracting valvular disease of the heart as a result of his war service would not be noticeably incapacitated until more than seven years after discharge. Should such an exceptional case arise it would be considered in accordance with the special arrangements to which I have already more than once referred in this House.

First-aid Outfits on Motor Coaches.

Mr. RAMSDEN asked the Minister of Transport whether, in view of the numerous accidents to motor coaches and other similar vehicles, he was prepared to make it compulsory that a first-aid outfit should be carried on all such vehicles.—Colonel W. ASHLEY replied: While I view with considerable satisfaction the action of many operators of public service vehicles in equipping their vehicles with first-aid outfits and appliances, and in training their employees in their use, I do not think it would be reasonable to make the provision of such equipment compulsory; nor, indeed, have I at the present time any powers in the matter.

THURSDAY, FEB. 17TH.

Alcohol and Miners' Nystagmus.

Mr. FORREST asked the Home Secretary whether his attention had been called to a compensation case in Yorkshire in which it was stated that nystagmus was improved by excessive drinking; and whether he possessed any reliable information as to the effect of stimulants on this malady.—Sir W. JOYNSON-HICKS replied: I have no knowledge of the case mentioned by the hon. Member, but I would refer him to the findings of the Miners' Nystagmus Committee of the Medical Research Council who deal with this subject on page 50 of their first report. It appears that while large doses of alcohol may have a very transient effect in lessening, for an hour or so, the oscillations of the eyes, the influence of alcohol, generally speaking, is markedly harmful and delays recovery.

Completion of School Medical Service.

Mr. COVE asked the President of the Board of Education whether he had asked local education authorities to reconsider their programmes under the head of special services, with a view to substituting proposals in regard to the school medical services in place of proposals involving additional special school accommodation.—Lord E. PERCY replied: The following is the relevant passage in Circular 1388 of Feb. 11th, 1927, to which the hon. Member refers:—

Special Services.—Under this head the Board felt that the first aim of national policy should be the completion of the School Medical Service. It will be understood that the Board do not underrate the value of special schools, but while no rule can be laid down which is universally applicable to all areas and to all types of physical defect, the completion of the School Medical Service would appear to be of primary importance, and the Board suggest that authorities should concentrate on this definite aim. With regard to provision for mentally defective children, authorities will be aware that this very difficult problem is now being explored by a special committee, and, save in exceptional circumstances, it would not seem prudent to incure heavy expenditure at the present moment on new schools for such children or on enlargements of existing schools. The adoption of such a policy may make it necessary for authorities to reconsider their programmes under this head, and in some cases to substitute proposals in regard to the School Medical Service for proposals involving additional special school accommodation.

Open-air Schools for Invalid Children.

Mr. BARKER asked the President of the Board of Education if he was aware that Sir George Newman in his last report stated that 57,395 children attending school in 1925 were suffering from latent tuberculosis, malnutrition, debility, and anæmia; and what steps had been taken to provide the necessary open-air recovery schools for such children.—Lord E. PERCY replied: The answer to the first part of the question is in the affirmative. As regards the second part, it must not be assumed that additional accommodation is required in open-air schools for anything approaching the number of children mentioned, since most of these children would need to attend open-air schools for only a relatively short period. In the past 18 months the accommodation in open-air schools has been increased by some 900 places, and proposals have been approved for over 1500 further places, apart from proposals now under consideration. In addition, a number of local education authorities have included proposals for new open-air schools in their programmes.

Slum Clearances.

Mr. TREVELYAN THOMSON asked the Minister of Health how many towns had begun slum clearances under the Housing Act of 1919 and subsequent Acts.—Mr. CHAMBERLAIN replied: The position in regard to the clearance of slum areas in England and Wales is as follows: 93 schemes relating to 71 local authorities have been confirmed since 1919. On Jan. 1st last tenders had been approved or loans sanctioned in respect of 74 schemes for the erection of new houses in order to provide accommodation for the displaced population and to enable clearances of the areas to be commenced. In the case of 72 schemes the areas had been wholly or partially acquired, and clearance was in progress in the case of 56 schemes.

Minister of Health and Medical Officer's Salary.

Mr. WOMERSLEY asked the Minister of Health if he was aware that the Lindsey County Council recently advertised for a lady doctor as an assistant to the medical officer for Lindsey at a salary of £400 per annum, plus travelling allowances; that 15 applications were received from properly qualified persons; that the approval of the Ministry of Health to such appointment had been withheld; and on what grounds the appointment could not be approved.—Mr. CHAMBERLAIN replied: The answer to the first and third parts of the question is in the affirmative. As regards the second part, I have no official information as to the number of applicants for this post or as to their qualifications. As regards the last part, I should not be able to approve this appointment as I am not satisfied that it would be possible to obtain for the salary proposed an officer with the necessary qualifications and experience of the important work attaching to this post or one who would be likely to secure the coöperation of the medical practitioners in the county.

Insulin and Diabetes.

Brig.-Gen. BROOKE asked the Minister of Health whether his medical officers were still recommending the use of insulin for the treatment of diabetes; and whether, in view of the attacks now being made on this remedy, he would define the position of his department.—Mr. CHAMBERLAIN replied: It is not ordinarily part of the duties of medical officers of the Ministry to make recommendations in regard to treatment, though regional medical officers may occasionally offer suggestions at the request of an insurance practitioner. As regards the second part of the question, I am advised that the administration of insulin is unquestionably of great value in suitable cases. I may add that the mortality-rate from diabetes does not appear

to be increasing, although the number of deaths from this disease naturally tends to increase with the increase in the population.

Medical Examination of Assisted Emigrants.

Mr. RAMSDEN asked the Minister of Health whether he had considered the recommendation made by the inter-departmental committee appointed to consider the effect on migration of schemes of social insurance that the 10*s.* 6*d.* fee for the medical examination of those seeking assisted passages should be paid from national health insurance funds; and what action he proposed to take.—Mr. CHAMBERLAIN replied: I have considered the recommendation to which the hon. Member refers. Legislation will be required to give effect to it, and I hope to include the necessary provision in the next Bill relating to national health insurance.

Offences against Young Persons.

Viscount SANDON asked the Minister of Health what action, legislative and administrative, he proposed to take on the subject of the Report of the Committee on Offences against Young Persons.—Sir W. JOYNSON-HICKS replied: As regards administrative action I have already commended the Report to the consideration of magistrates and the police. Whether any, and if so what, legislation should be proposed is a matter which will be better considered when the Committee on Youthful Offenders, which is now sitting, has made its report. Effect was proposed to be given to Recommendation 27 in the Mental Deficiency Bill of last session.

Cleanliness of Imported Dairy Produce.

Brig.-Gen. CLIFTON BROWN asked the Minister of Health whether, in view of the fact that neither the Imported Milk Regulations or the Milk and Dairies Order apply to Ireland, the Channel Islands, or the Isle of Man, any inspection was made at the ports or elsewhere of milk and dairy produce coming from those places, or what was the procedure adopted to ensure clean imports of dairy produce.—Mr. CHAMBERLAIN replied: I understand the position to be that no milk is imported into this country from Ireland, the Channel Islands, or the Isle of Man. Dairy produce brought from them is subject, under the Imported Food Regulations, to the same inspection at the ports as dairy produce brought from other countries.

New Mental Deficiency Institution at Clayton Heights.

Mr. WILLIAM HIRST asked the Minister of Health when the plans for the new mental deficiency institution at Westwood, Clayton Heights, which had been under consideration by the Board of Control for the past two and a half years, were likely to receive the approval of the Board.—Mr. CHAMBERLAIN replied: I am informed that the Board of Control are awaiting the submission by the local authority for approval, of the completed plans, specification, and estimate. The Board will deal with them at once on their receipt.

Cost of Mental Patients.

Mr. ROBERT RICHARDSON asked the Minister of Health what was the cost to the local authorities for the maintenance of the mental patients chargeable to them, together with the amount granted by the Exchequer in relief of such cost, for the years 1913–14 and 1925–26, respectively.—Mr. CHAMBERLAIN replied: The total expenditure of local authorities in England and Wales other than out of loans in connexion with mental patients in county and borough asylums was £4,305,000 in 1913–14 and £8,087,000 in 1924–25. This expenditure was met out of the following sources:—

	1913–14	1924–25*
Repayments by relatives and others	£612,000	£1,668,000
Specific Government grants	£955,000	£1,040,000
Other sources, mainly rates	£2,738,000	£5,379,000

* Figures for 1925–26 are not yet available.

The Mental Deficiency Act, 1913, was not in force in 1913–14. The total expenditure of local authorities in 1924–25 on mental deficiency other than out of loans was £941,000, which was met as to £102,000 from receipts from relatives, &c., as to £392,000 from specific Government grants, and as to £447,000 from other sources, mainly rates.

New Accommodation for University of London.

Sir WILLIAM DAVISON asked the Chancellor of the Exchequer whether, arising out of the promises made by him to the University of London last June, any plans for the additional accommodation required for the head-quarters of the University at South Kensington had been submitted; and whether any land had been purchased from the Bedford Trustees for housing the Institute of Historical Research and the Students' Union at Bloomsbury.—Mr. CHURCHILL replied: The answer to both parts of the question is in the negative.

Fatal Accidents in Coal-mines.

Mr. THOMAS WILLIAMS asked the Secretary for Mines the number of fatal accidents which occurred in the coal-mines of Great Britain between May 1st and Dec. 1st, 1926; and the number of fatal accidents which had occurred since Dec. 1st.—Sir P. CUNLIFFE-LISTER (President of the Board of Trade) replied: From the beginning of May to the end of November 1926, there were 141 fatal accidents at mines under the Coal-mines Acts, causing 145 deaths. For the period Dec. 1st, 1926, to the end of January, 1927, the corresponding figures were 164 and 173.

MONDAY, FEB. 21ST.

Ministry of Health.

On a supplementary estimate of £220,000 for the Ministry of Health,

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) said that £350,000 was required under this vote for sickness and disablement benefit under the National Insurance Act, and in addition there was a sum of £13,000 for Wales. As in Scotland they had found in England and Wales that during the current financial year, although there had been for the most part no prevalence of any marked epidemic or exceptional outbreak of sickness, there had been a wholly exceptional increase in claims on certain approved societies, especially in the coal-mining areas, and the same conditions have led to an increased expenditure on drugs necessitating an extra grant of £25,000. It was estimated that after making an allowance for the increased amounts distributed as additional benefits the claims experience of the approved societies have exceeded that of 1925 by no less than £2,309,000, and it was very significant that the rate of increase and the expansion of sickness benefit was not uniform throughout the country, but that its geographical distribution had corresponded very closely with the incidence of unemployment due to the coal dispute. He agreed that in times of industrial depression one might naturally look for some measure of increased sickness. But in reviewing the situation in June, the Minister and everyone concerned in the matter could not escape the conclusion that there were large numbers of insured persons who had succeeded in obtaining medical certificates although they were not in fact incapable of work within the definition of the National Insurance Act, and this fact had been confirmed by the very large number of cases that were referred to the medical referees. There had been a very high proportion of claimants who, when they were referred to the medical referees signed off in preference to presenting themselves for examination, and in this supplementary estimate there was an extra sum of £30,000 spent in the increased employment of medical referees. The normal number of people who were referred to medical referees by approved societies under the National Insurance Act every year was about 200,000. In the period referred to—from the beginning to the end of the coal stoppage—the societies referred between 400,000 and 500,000 persons to the medical referees. Of these people some 40 per cent. signed off in preference to presenting themselves for examination, and as for the remainder the examination proved that only 66 per cent. were incapable of work compared with the normal 80 per cent. As far as ordinary foresight could see, this was an unforeseen and unfortunate experience so far as national insurance was concerned, which everyone hoped would not be repeated. He did not think that anyone could blame the Department or the approved societies or the actuary for the undoubtedly disastrous consequences which followed the recent industrial dispute. So far as they could judge at the Ministry things were now rapidly approaching the normal, and the normal rate of sickness insurance experience would, he hoped, soon be reached. There were other items in the vote which were of a more pleasant nature. One arose in connexion with a dental service which was for the first time being inaugurated in connexion with national insurance. The money was required for the salaries of regional dental officers for the last two months of the present financial year. Out of the surpluses available for additional benefits as a result of the second valuation of approved societies £2,000,000 have to be re-allocated to pay benefits under the additional benefit scheme, and 6300 societies were engaged in administering this extra benefit.

Mr. WHEATLEY said he would move the reduction of the vote by £100 as a protest against the attack which had been made on the medical profession. The hon. Member's statement with regard to an honoured and honourable profession could not go unchallenged or uncriticised in that House. It amounted to this: that during the coal stoppage large numbers of the medical profession were guilty of fraud, and that they were aided and abetted in carrying out their fraudulent policy by large masses of the working classes in this country. There was no use mincing matters. If

it were true, as the hon. Member speaking for the Government alleged, that the approved societies had been deprived of large sums through members of the medical profession granting certificates that were not warranted, then those medical practitioners were guilty of a very gross system of fraud. That was not the view of the medical profession which he had learned from his experience in life or during his brief experience as Minister of Health. He had always been taught to look up to the medical profession as being among the most honourable sections of the community, and he was sure that they would read with amazement the statements made on behalf of the Government that day. He left the Government and the medical profession to settle this between themselves. He had no doubt that the medical profession would find means of clearing their character of this unjust imputation cast upon them by the Ministry of Health.

Miss WILKINSON said that those who knew the mining areas knew the amount of pressure that was brought to bear on doctors to prevent them putting anyone on the fund they could possibly keep off. The statement of Sir Kingsley Wood was the most appalling condemnation of the whole policy of the Ministry of Health throughout the mining dispute. Sir Kingsley Wood's statement was not only a libel on the medical profession, but an insult to the intelligence of the Committee. The doctors at any rate behaved like decent citizens, and as men with some humanity. They tried to get food for these unfortunate men whom the Ministry of Health tried to starve.

Dr. VERNON DAVIES said the compliments of Miss Wilkinson to his profession were rather of a back-handed nature, because she said that medical men had put men on to medical benefit who ought not to have been put there. That meant that they were in fact doing a dishonest act; that they were men of dishonour. Malnutrition was not a disease for which a medical benefit could be given, and if a doctor put on a medical certificate that the person was suffering from disability or malnutrition, the approved society would not accept the certificate. The question which had been raised by the Parliamentary Secretary that evening opened up a very wide subject and brought to the front one of the inherent defects of the National Insurance Act which they recognised was bound to come up some time. Sir Kingsley Wood's allegation against the medical profession was a most serious one, and ought to be most carefully examined. Doctors were human beings like their patients. They had hopes and desires and anxieties too, and while in practice they were anxious not to offend their patients unnecessarily. Two curious facts were (1) that as soon as the coal stoppage was over, there was a sudden drop in the benefits; and (2) that the approved societies sent a larger number of cases to the medical referees. But one of the peculiarities of the Insurance Act was that a person could do no work, or he could do full work. He could not do part work. A doctor could not say that a person was suffering from disability; he must give it a definite name. In his own practice very often he thought that a patient was well enough to do light work, but the patient said, "I really have not the strength to do the amount of work I had to do" and he (Dr. Davies) had to take his word. The panel doctor was practically in the hands of his patient. He might have a strong suspicion, but if he persisted in signing the patient off the patient would go away and tell all his friends "Dr. So-and-so has signed me off. He is a brute. Don't you ever go to him." That went round and the doctor lost 10, 20, 50, or a 100 panel patients. It was very difficult for a doctor to prove whether a man was fit for work. Supposing a man said "I have a pain in my back," and the doctor examined him and said "I cannot find any pain." The patient replied "No, but I feel the pain." What could the doctor do in that case? So that although he thought that the doctors perhaps were under a little suspicion, that they were a little too lenient and did not exercise sufficient care in sending patients back to work, the main result that they should judge from this supplementary estimate was that a certain number of people finding that they were locked out and could not get relief from the Poor Law suddenly remembered that there was such a thing as the panel doctor. Having got on the benefit list they took good care that they did not get off until they were absolutely fit and strong. That perhaps was human nature. So long as they had national insurance on its present basis they would have that difficulty to face. The result was that the moral of the patients and the moral of the doctor in some cases was sapped.

Sir KINGSLEY WOOD said that he had not challenged the position of the medical profession in this matter, but as they had been challenged, it was right to point out that the doctors themselves had taken action. The matter had not escaped their notice or that of the approved societies. In July last the Minister of Health communicated with the appropriate authorities, and in October the National Health Insurance Commissioner attended a representative conference and put the whole of the facts before the medical men. The conference passed a resolution that the Insurance Acts Committee be asked to consider what practical steps could be taken to meet the difficulties raised by the National Health Insurance Commissioner, and that in the meantime the representatives of the local medical panel committees pledged themselves to use their influence locally in endeavouring to secure strict adherence to the principles governing certification for purposes of the National Health Insurance Acts. He hoped therefore that it would not be thought that he had over-stated the case or that medical men themselves were not alive to the evils arising from the state of things which he had indicated. He recognised the difficulties of the doctors, but he would emphasise the fact that in the interest of national health insurance and of the other contributors to the fund, if they once did away with the fundamental test of capacity for work, they destroyed the whole financial basis of national insurance.

On a division the vote was agreed to by 187 votes to 78.

TUESDAY, FEB. 22ND.

Number of Insured Persons.

Mr. HERBERT WILLIAMS asked the Minister of Health the estimated number of persons insured under the National Health Insurance Act on Dec. 31st, 1926, and, for comparison the number on Dec. 31st, 1925.—Mr. CHAMBERLAIN replied: The approximate number of persons insured under the National Health Insurance Act in England and Wales on Dec. 31st, 1925, was 14,196,000. The necessary information is not yet available to enable the number insured on Dec. 31st, 1926, to be furnished for comparison, but I am advised that they are roughly the same as in the previous year.

Rejection of Recruits for Air Force.

Mr. HORE-BELISHA asked the Secretary of State for Air how many applicants were accepted in the year 1926 for His Majesty's Air Force; and how many were rejected on account of some physical or medical disability.—Sir S. HOARE replied: The answer to the first part of the question is 379 men and 1057 boys; to the second 258 men and 34 boys.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Feb. 28th.—8 P.M., ODONTOLOGY. Dr. H. W. Barber: The Relationship of Diseases of the Skin to Dental Infection. Mr. E. C. Sprawson: Further Notes on Dentigerous Cysts. Cases will be shown.

TUESDAY, March 1st.—8.30 P.M., ORTHOPÆDICS. Discussion on the Treatment of Pes Cavus. Opener: Mr. Rocyn Jones. Mr. Naughton Dunn and others will take part. 8.30 P.M., PATHOLOGY: Laboratory Meeting at the Lister Institute, Chelsea-gardens, S.W. 1. *Papers:* M. Robertson: The Werbitzki Phenomenon in a Free-living Flagellate. P. Bruce White: Reactions of Alcohol-soluble Bacterial Substances to Salt and Serum. M. C. Maitland: Selection of Non-virulent Varieties from Virulent Types of *C. diphtheriæ*. F. M. Burnet: Roughness and Smoothness in Relation to Bacteriophage Sensitivity. H. L. Schütze: Some Augmentor Effects in Growth of *B. pestis*. H. B. Maitland: Antigenic Properties of Foot-and-Mouth Virus in Relation to Prophylaxis. T. Lumsden: In Vitro Experiments on Immunity to Cancer.

WEDNESDAY.—5.30 P.M., TROPICAL DISEASES AND PARASITOLOGY. *Papers:* Dr. P. Manson-Bahr: Plasmochin in Malaria. Dr. N. A. Dyce Sharp: Onchocerciasis (communicated by Sir William Prout). Prof. R. T. Leiper: Note on the Geographical Distribution of *Physaloptera caucasica* v. Linstow in Africa. 8.30 P.M., SURGERY. Discussion on the Surgical Treatment of Chronic Non-tuberculous Arthritis. Opener: Mr. C. Max Page. Other Speakers: Dr. Beddard (Medicine), Mr. R. C. Elmslie (Orthopædics).

THURSDAY.—4.30 P.M., BALNEOLOGY AND CLIMATOLOGY. Discussion on the Breakdowns of Middle Life. Openers: Dr. Campbell McClure, Dr. Wybauw (Spa), and Dr. Fortescue Fox.

FRIDAY.—5 P.M., LARYNGOLOGY. (Cases at 4 P.M.). *Paper:* Dr. Irwin Moore: Pathology of Œsophagectasia, Dilation of Œsophagus without Anatomic Stenosis at the Cardiac Orifice. Cases and Specimens will be shown by Mr. Herbert Tilley, Dr. Dan McKenzie, Mr. W. M. Mollison, Mr. A. J. Wright, Mr. L. Graham Brown, and others. 8.30 P.M.,

ANÆSTHETICS and ODONTOLOGY. Special joint discussion on Anæsthetics in Dental Operations. Openers: Dr. Bellamy Gardner (Anæsthetics), Mr. Ivan Spain (Odontology).

SATURDAY.—10.30 A.M., OTOLOGY. (Cases at 9.30 A.M.). Cases and Specimens will be shown by Mr. Nicol Rankin, Mr. Banks-Davis, Mr. E. Watson-Williams, Mr. Broughton Barnes, Mr. Gill Carey, Mr. T. B. Layton, Mr. Graham Brown, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Feb. 28th, to SATURDAY, March 5th.—FELLOWSHIP OF MEDICINE. Special lecture at the Medical Society, 11, Chandos-street, Cavendish-square, W., at 5 P.M. on THURSDAY, Dr. Arthur Whitfield: The Differential Diagnosis of Some Acute Rashes. Open to all members of the medical profession, without fee.—LONDON LOCK HOSPITAL, Dean-street, W. Special Course in Venereal Diseases. Clinical work daily and special lectures.—NATIONAL HOSPITAL, Queen-square, W.C. Special Course in Neurology. Instruction daily in the O.P. Department, and special lectures and demonstrations.—Further information from the Secretary.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Feb. 28th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 2 P.M., Mr. Addison: Surgical Wards. 4 P.M., Sir Henry Simson: The Supports of the Uterus.

TUESDAY, March 1st.—10 A.M., Medical Registrar: Clinical Methods. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.

WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 4 P.M., Dr. Manson-Bahr.

THURSDAY.—10 A.M., Dr. Stewart: Neurological Department. 12 noon, Mr. Simmonds: Demonstration of Fractures. 4 P.M., Sir Henry Simson: Meddlesome Midwifery.

FRIDAY.—11 A.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Mr. Vlasto: Operations on Throat, Nose, and Ear.

Daily.—10 A.M. to 5 P.M., Operations, Medical, Surgical, Special, Out-patient Departments (Saturdays, 10 A.M. to 1 P.M.).

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Feb. 28th.—10 A.M., Surgical Clinic. 2 P.M., Medical Cases in the Wards. 2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY, March 1st.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

On MONDAY, Feb. 28th, and TUESDAY, March 1st, there will be special demonstrations of Medical Cases and Surgical Cases by Dr. A. J. Whiting and Mr. W. E. Tanner respectively.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, March 1st.—5 P.M., Dr. F. Dearden: Health Hazards in the Cotton Industry. (First Milroy Lecture). THURSDAY.—5 P.M., Second Milroy Lecture.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

WEDNESDAY, March 16th—5 P.M., Dr. Hildred Carlill: Simulation of Surgical Affections by Hysteria. (Arris and Gale Lecture.)

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, March 4th.—4 P.M., Mr. Watkyn-Thomas.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, March 1st.—5 P.M., Dr. Wilfred Fox; Cutaneous Syphilis (1).

THURSDAY.—5 P.M., Dr. Wilfred Fox: Cutaneous Syphilis (2).

ROYAL NORTHERN HOSPITAL POST-GRADUATE COURSE.

TUESDAY, March 1st.—3.15 P.M., Dr. R. Wade: Safety in Anæsthesia.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, March 3rd.—4 P.M., Dr. A. M. H. Gray: Ringworm.

PEOPLE'S LEAGUE OF HEALTH. (Sims Woodhead Health Lectures.)

MONDAY, Feb. 28th.—6 P.M. (at the Medical Society of London, 11, Chandos-street, W.), Dr. H. Gardiner-Hill: Internal Secretions as Factors in Nutrition.

MANCHESTER ROYAL INFIRMARY, POST-GRADUATE COURSE.

TUESDAY, March 1st.—4.15 P.M., Mr. John Morley: Graves's Disease from the Surgical Standpoint.

FRIDAY.—4.15 P.M., Mr. P. R. Wrigley: Demonstration of Surgical Cases.

ST. MARGARET'S HOSPITAL FOR WOMEN, Acomb-street, Whitworth Park, Manchester.

WEDNESDAY, March 2nd.—4.15 P.M., Mr. A. C. Magian: The Use and Abuse of Gland Extracts in Gynæcology.

ST. MARY'S HOSPITALS, Manchester.

FRIDAY, March 4th.—4.30 P.M. (at the Whitworth-street, West Branch), Post-graduate Lecture, Dr. F. H. Lacey: A Visit to the Wards.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS,

FRIDAY, March 4th.—3.30 P.M. (at the Royal Hospital), Dr. Skinner: Neurological Cases.

Appointments.

MAILER, R., M.D. Edin., F.R.C.S. Edin., has been appointed Assistant Surgeon, Victoria Infirmary, Glasgow.

THOMSON, M. SYDNEY, M.D. Camb., M.R.C.P. Lond., Junior Physician to the Skin Department at King's College Hospital.

Royal Free Sussex Hospital: GABB, H. S., M.B., Ch.B. Camb., Honorary Surgeon; CAIGER, G. H., M.B. Camb., F.R.C.S. Eng., Assistant Surgeon.

Vacancies.

For further information refer to the advertisement columns.

Barry Urban District Council, Accident and Surgical Hospital.—S. £750.

Bristol Royal Infirmary.—H.P.'s., H.S.'s., Dental H.S., &c. Each at rate of £80.

Burton-on-Trent Infirmary.—H.S. Jun. Res. H.S. £150.

Carshalton, Surrey, Queen Mary's Hospital for Children.—Jun. Asst. M.O. £500.

Chesterfield and North Derbyshire Royal Hospital.—Fifth H.S. At rate of £100.

East Riding Mental Hospital, Beverley.—Med. Supt. £900.

Federated Malay States, Central Mental Hospital.—Second Asst. Med. Supt. £700.

Great Yarmouth County Borough.—Asst. M.O.H., &c. £600.

Holland (Lincs.) County Council.—Asst. M.O.H. £600.

Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.—Asst. P.

Hospital for Tropical Diseases, Endsleigh-gardens, W.C.—Med. Supt. £250.

Hull City Education Committee.—Asst. Sch. M.O. £600.

Ipswich, East Suffolk Administrative County.—Asst. County M.O.H, &c. £625.

Leicester Royal Infirmary.—H.S. and H.P. At rate of £125 and £120 respectively.

Leicestershire County Council.—Asst. County M.O. £750.

London, Female Lock Hospital, 283, Harrow-road, W.—Surg. Res. £100.

London Jewish Hospital, Stepney Green, E.—Med. Reg. and Out-patient Asst. Also Surg. Reg. Each £50.

London Lock Hospital, 91, Dean-street, W.—Surg. Reg. £100.

Manchester, Ancoats Hospital.—Hon. Phys.

Manchester, Baguley Sanatorium.—Asst. M.O. £350.

Manchester, Royal Children's Hospital, Gartside-street.—Asst. M.O. At rate of £150. Also Res. Surg. O. At rate of £80.

National Hospital, Queen-square, W.C.—Res. M.O. £200.

Nottingham City Mental Hospital.—Jun. Asst. M.O. £350.

Nottingham General Hospital.—H.P. At rate of £150.

Oxford, Radcliffe Infirmary and County Hospital.—H.P. and Cas. H.S. Each at rate of £120.

Royal Free Hospital, Gray's Inn-road, W.C.—H.P. to Children's Dept.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. At rate of £150.

St. Marylebone Hospital, Ladbroke-grove, W.—Third Asst. M.O. £300.

St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. Asst. Surg.

St. Mary Islington Infirmary, Highgate Hill, N.—Asst. M.O. At rate of £350.

St. Peter's Hospital for Stone, &c., Henrietta-street, Corent-garden, W.C.—H.S. At rate of £75.

Samaritan Free Hospital for Women, Marylebone-road, N.W.—H.S. At rate of £100.

Southend-on-Sea County Borough—Asst. M.O.H., &c. £600.

Southampton, Royal South Hants and Southampton Hospital.—Jun. H.S. At rate of £150.

Surrey, Redhill, Royal Earlswood Institution.—Jun. Asst. M.O. At rate of £250.

West Bromwich County Borough.—Asst. M.O.H. £600.

West London Hospital, Hammersmith-road, W.—H.P. and two H.S.'s. Each at rate of £100. Also Hon. Med. Reg. £100.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. and Jun. Non-Res. H.S.'s. At rate of £150 and £100 respectively.

Willesden Municipal Hospital.—Res. M.O. £150.

Yeovil Union.—M.O., &c. £230.

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Audley (Staffs), Calvert (Bucks).

Births, Marriages, and Deaths.

BIRTHS.

BARCLAY.—On Feb. 20th, at 2, Greenhead-road, Huddersfield, the wife of William Barclay, M.B., F.R.C.S. Edin., of a son.

BORHAM.—On Feb. 14th, at Marsham-street, Westminster, S.W., the wife of John Douglas Borham, M.R.C.S., L.R.C.P., of the Royal Army Medical Corps, of a son.

POPE.—On Feb. 16th, at Bournemouth, the wife of Surgeon-Captain W. H. Pope, O.B.E., R.N. (retired), of a daughter.

MARRIAGES.

LEAN—PALMER.—On Thursday, Feb. 17th, at St. Margaret's, Streatham-on-Hill, Oscar Bevan Lean, M.R.C.S., L.R.C.P., to Winifred Mary, daughter of Mr. C. Palmer and the late Mrs. Palmer, of Brixton, S.W.

MAYOR—JENKINS.—On Feb. 12th, at S. Matthew's, Westminster, Hilary Mayor, M.R.C.S., L.R.C.P., to Evelyn, daughter of Brig.-Gen. N. F. Jenkins, C.M.G., C.B.E., of Greycoat-gardens, S.W.

DEATHS.

GUILLEMARD.—On Feb. 18th, suddenly, at a nursing home, after a long illness, Bernard James Guillemard, M.D., O.B.E., formerly of Rondebosch, Cape.

KNIGHT.—On Feb. 17th, at Lytton-avenue, Letchworth, Herts, Charles Frederick Knight, M.D., M.R.C.S., L.S.A., aged 85.

PARSON.—On Feb. 14th, Francis John Parson, M.R.C.S., L.R.C.P., of "Ryecroft," Weybridge, and late of Cape Town, in his 80th year.

PHILLIPS.—On Feb. 18th, at Hardwick Lodge, Streetly, George Arthur Phillips, J.P., M.R.C.S., in his 78th year.

PORTER.—John Fletcher Porter, C.B.E., J.P., M.B. Lond., of 206, Upper Clapton-road, London, died on Feb. 17th, aged 54.

WEEDEN.—On Feb. 14th, at Royal-terrace, Weymouth, Alfred Douglas Weeden, M.R.C.S., L.R.C.P., aged 32.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

QUEEN ALEXANDRA MEMORIAL.—Speaking at a meeting at Birmingham to inaugurate a local appeal on behalf of the National Memorial to Queen Alexandra, the Duke of Portland, the President, stated that the present total of the fund is £171,000, of which £74,000 has been given by Scotland.

ST. MARK'S HOSPITAL.—At the annual meeting of St. Mark's Hospital, City-road, held at the Mansion House on Feb. 18th, the Lord Mayor (Sir Rowland Blades), who presided, quoted the striking increase in the hospital's work and a long waiting-list of patients in justification of the construction of the new wing now in course of erection. Mr. Swinford Edwards and Sir C. Gordon Watson spoke of the pioneer character of St. Mark's which had led to the reception of patients from all over the kingdom, cases of peculiar difficulty and complexity affecting the colon and bowel tending to gravitate to the institution. A gratifying circumstance of the meeting was the promise of a gift of £500 by Mr. Sheriff Shepherd towards the £5000 still to be raised for the Extension Fund.

Notes, Comments, and Abstracts.

THE INFLUENCE OF JOHN HUNTER UPON EARLY AMERICAN SURGERY.

Being the Hunterian Lecture delivered before the Hunterian Society at the Mansion House, London, on Jan. 17th, 1927,

BY JOHN M. T. FINNEY, M.D.,

PROFESSOR OF CLINICAL SURGERY AT JOHNS HOPKINS HOSPITAL, BALTIMORE; SOMETIME PRESIDENT OF THE AMERICAN COLLEGE OF SURGEONS AND CHIEF CONSULTANT IN SURGERY TO THE AMERICAN EXPEDITIONARY FORCE.

(*Concluded from p. 422.*)

IT has been frequently stated that American medicine really had its beginning with the close of the Revolutionary War and the development of a national consciousness.

This was the great formative period of American medicine. Its swaddling clothes were being laid aside for garments of maturer years. The profession was being gradually emancipated from dependence upon and subservience to European theories and institutions. While the great mass of the profession were as yet neither learned in science nor skilled in practice, still there were to be found, scattered here and there throughout the widely expanding country, those who had attained some degree of proficiency in both.

The Direct Influence of Hunter.

A review of the medical men of prominence in America during the latter part of the eighteenth century and the early part of the nineteenth shows a surprisingly large number of those who had received their surgical training either in whole or in part under John Hunter or one of his pupils. The number of these is so large that I can here do no more than call attention to a few of the more eminent among them, giving only a very sketchy outline of their work and the more important contributions they made. It might be well, in passing, to emphasise the fact that John Hunter's influence was general, not local. Although at first more manifest in Philadelphia, because of the rather extraordinary group of young men from that city who were his earliest American students, it was to be found extending even to the then far Western frontier, carried there by such men as Ephraim McDowell of ovariotomy fame, and Benjamin Dudley, voices crying in the wilderness, preparing the way for the great advances in scientific medicine to follow.

If time allowed it would be interesting to attempt to trace, step by step, the influence exerted by John Hunter in America down through one surgical generation after another to the present day. So virile and dominating was his influence that it may be readily recognised and transmitted like other distinguishing hereditary traits. Take, for example, my own former chief, the late Prof. William S. Halsted. While his early training had been received in the New York School of Surgery, founded by John Jones, his later and predominating views were largely coloured by his continental experiences and associations covering an extended period. Nevertheless, John Hunter has never had a more enthusiastic champion or more understanding exponent of his principles of scientific surgery than Halsted. His habits of thought and action were throughout characteristically, perhaps unconsciously, Hunterian. That he admired him greatly is evidenced by the fact that his own laboratory of scientific research at Johns Hopkins Hospital, established for purposes of animal experimentation, bears the name of Hunter—"The Hunterian Laboratory."

To one who has had the good fortune, as I have, to have been connected, from its beginning, with the Johns Hopkins School of Surgery, founded by Halsted, the greatest of American surgical teachers, it is easy to recognise in his pupils many of the traits that have characterised the Hunterian School. In the various surgical clinics and medical schools scattered throughout the United States, headed by former students trained by him, the same general methods and ideas are being promulgated, and thus the seed sown by Hunter so many years ago is being continually replanted and perpetuated by succeeding generations.

Medical Journals and Museums.

But another powerful means of diffusing medical knowledge and promoting the welfare of the profession by means of the printed page was inaugurated about this time—namely, the first of the long line of medical periodicals in the United States of America. The *Medical Repository* was founded in New York in 1797 by Samuel Mitchell, Elihu Smith, and Edward Miller, the first named of whom studied

for a term of years in both Edinburgh and London, where he attended Mr. Hunter's lectures, and undoubtedly was stimulated by him to record facts as well as to observe them. Smith, a brilliant product of the Philadelphia Hunterian School, suffered an untimely death from yellow fever. The *Repository* was a quarterly journal and its pages contained many of the ablest medical and scientific productions of the period. It and its successors rapidly became powerful auxiliaries in the cause of medical education and the diffusion of knowledge.

The predominating influence exercised by John Hunter over medical thought in the United States is still further emphasised in the collection of anatomical specimens and the formation of museums, a passion with him. John Collins Warren, the founder of the Warren Museum of Harvard Medical School, and as we will see in a moment one of the founders of the Massachusetts General Hospital as well, was a student under the famous coterie of Hunter's pupils at Guy's and at St. Bartholomew's at the beginning of the nineteenth century, where, almost at first hand, he learned Hunter's methods. From them he acquired the taste for making and preserving anatomical specimens. His grandson still living, who bears the same distinguished name, now professor of surgery, emeritus, of Harvard University, my former teacher, in a personal communication writes me thus: "I have no doubt that Hunter's example stimulated my grandfather, John Collins Warren, to carry out this work."

Caspar Wistar, who succeeded William Shippen as professor of anatomy in the University of Pennsylvania, was the author of "A System of Anatomy," now almost forgotten, the earliest treatise on anatomy published in this country. "His description of the ethmoid bone was classical. His memory survives in the Wistaria Vine, which was named after him." He was the founder of the present Wistar Institute of Anatomy and Biology in Philadelphia. He, too, while studying in London came under the spell of Hunter's influence. Sir William Osler, in an address entitled the Leaven of Science, delivered at the opening of the Wistar Institute, writes: "It is pleasant to think that direct from John Hunter came the influence which made anatomy so strong in this school, and the zeal in the acquisition of specimens, which ultimately led to the splendid collections of the Wistar-Horner Museum."

Teaching Hospitals.

In 1769, on the occasion of the conferring of the first medical degree by King's College in New York, Samuel Bard, the same who, it will be recalled, was largely instrumental in the founding of the King's College Medical School, delivered a discourse upon the Duties of a Physician. In the course of this address (which seems to have been hardly less effective than that delivered in Philadelphia in 1765 by his friend John Morgan in connexion with the opening of the Philadelphia Medical College) Bard laid especial emphasis upon the usefulness, indeed the necessity, of a public hospital, as a most efficient means of relief for the suffering of the sick poor, as well as for the instruction of medical students. He also emphasised the prime importance of its immediate establishment. So convincing were his arguments that the effect of this address upon his audience was immediate and pronounced. A hospital building, the forerunner of the present New York Hospital, was shortly afterwards begun. When about completed, in 1773, the building was destroyed by fire, so that the opening of the hospital was delayed until the year 1791. During all of this time, and for many years thereafter, Dr. Bard first supervised its construction and then served as one of the visiting staff. This man, who was so influential in the medical life of New York and who was founder of both its first medical school and hospital, had been a pupil at Edinburgh and under Hunter in London.

The next hospital, and to this day one of the finest appointed and best of its kind in the States—the Massachusetts General Hospital—was founded in Boston in 1811 by John Collins Warren, the founder of the Warren Museum, and James Jackson. It was not opened for patients, however, until ten years later. In their circular letter appealing to the public for funds this significant statement appears, "A hospital is an institution absolutely essential to a Medical School." An early enunciation of a principle long since established.

John Collins Warren and the Introduction of Anæsthesia.

Warren, one of the most interesting and productive of the group in the Hunterian era of American surgery, was a member of a family whose name has been well known in the surgical annals of the United States from pre-revolutionary times down to the present day. Born in Boston and graduated at Harvard, he went to London in 1799, where as a dresser at Guy's Hospital he came, as has been stated, directly under the influence of the two Coopers, William and Astley, with the latter of whom there was formed a friendship that lasted throughout life. He also took advantage of the opportunities offered for study at the clinics of Cline and Abernethy at St. Bartholomew's and of Home at St. George's. From these he learned the new science of surgical pathology so recently inaugurated by Hunter. After some time spent here, he went to Edinburgh for a year, then to Paris for another year. He then revisited London for a period, and returned home in the autumn of 1802. At once he became associated with his father as prosector for his anatomical lectures at Harvard, and succeeded him as full professor in 1815. Shortly after this the *Boston Medical and Surgical Journal*, a weekly publication still in active existence, was formed by the merging of two other journals. He became one of its first editors. "But the crowning event of Dr. Warren's career was the part that he played in the introduction of surgical anæsthesia. On Oct. 16th, 1846, he performed a major operation at the Massachusetts General Hospital while the patient was under the influence of ether administered by Dr. W. T. G. Morton. The experiment was so successful that it was used in other operations on the following days. This experience showed that ether as an anæsthetic agent was safe, certain, and complete, a triple feat which announced to the world that what had been dreamed of for many years had become a reality."

Of course, as is well known, Crawford W. Long, of Georgia, had performed surgical operations four years earlier, in 1842, under general anæsthesia induced by sulphuric ether. Little publicity, however, had been given to the fact, and to Warren is given the credit for the introduction of ether into general use. Both Long with ether and Jones with pylorectomy, as will be seen, because of failure to publish their work, did not receive the credit undoubtedly due to them. McDowell was more fortunate in having Lizars as his publicity agent.

Philip Physick and Experiments on Sutures.

That Hunter's teaching with regard to the value of the experimental method in surgery bore actual fruit there is abundant evidence to be found in a review of the early surgical literature. For example, in the *Eclectic Repertory and Analytical Review*, vol. vi., p. 389, Philip Syng Physick, long a student of Hunter's, makes a preliminary report with regard to his experience in the use of absorbable ligatures. He says: "Having repeatedly experienced considerable delay in the handling of wounds from ligatures applied on divided arteries remaining for a long time in the sore before they could be removed, I have, for many years, been very desirous of avoiding such an inconvenience in the use of ligatures. . . . . It appeared to me, therefore, that ligatures might be made of leather, or of some other animal substance, with which the walls of a vessel could be compressed for a sufficient time to prevent hemorrhage; that such ligatures would be dissolved after a few days, and would be evacuated with the discharge from the cavity of the wound."

"Under this impression, I requested Dr. Dorsey (his nephew) to try the experiment on a horse, by using a ligature of buckskin. This was found to answer every purpose, and came away in a few days." He states that he had tried the effect of various other absorbable materials, buckskin, kid, parchment, and catgut, and goes on to say, "future experiments will probably place at the command of the surgeon a variety of these ligatures which may be so selected as to remain the exact length of time he may require." A prophecy long since fulfilled.

Philip Syng Physick, with the singularly appropriate name, was the personal friend and one of the favourite pupils of John Hunter. He is referred to by medical historians generally as the first great American surgeon; by some as the Father of American Surgery. He graduated in arts at the University of Pennsylvania in 1785. After a preliminary course in the office of Dr. Kuhn (during which period he attended lectures in the Philadelphia College of Medicine, but did not take his degree), with his father he went to London, and by him was placed under the care of John Hunter, where he became a member of his family for a period of two years. "The first intimation of the course of study which his principal wished him to pursue was made in characteristically Hunterian fashion. It was given in reply to a question from the father of young Physick as to what books it would be necessary for him to procure for his son's use. "Then, Sir, follow me," said Hunter, "and I will show you the books your son has to study," and leading the way from his study to the dissecting-room, he pointed to several bodies, adding, "There are the books which your son will learn under my direction, the others are fit for very little."

Physick assisted Mr. Hunter in many of his experiments, and was recommended by him for the position of house surgeon at St. George's Hospital. It is stated by his biographers that Mr. Hunter later invited him to share with him in his professional business, looking to the

permanent establishment of Physick in London, possibly as his successor. This offer was declined, however, but there can be no doubt that Physick "cherished in after life the memory of John Hunter for whom he felt great admiration . . . and more profound veneration than for any other man." Physick returned to Philadelphia in 1792, and shortly after was elected to the surgical staff of the Pennsylvania Hospital. In 1800 he began a course of lectures on surgery which attracted large numbers and much attention; so much so that shortly thereafter the chair of surgery and anatomy, filled by Shippen, was divided and Physick was appointed to the professorship of surgery, where for 13 years he taught large classes of students the principles of surgery as learned from his teacher, John Hunter. Through these students, coming from all parts of the country, his ideas became widely disseminated.

Physick's contributions with reference to the recurring epidemics of yellow fever, the treatment of ulcers, mechanical measures and rest in the treatment of joint affections and fractures, especially of the thigh, an improved instrument for lithotomy, an improved method for ligating the pudic artery, advances in the treatment of stricture for the urethra, a method of stimulating union in case of ununited fracture of bone by use of the seton, plastic surgery, imperforate anus, operations upon the tonsil and the use of the stomach-pump—all attest the wide range of his activities in both medicine and surgery. Says Dr. Welch, "Physick was almost as much a mouthpiece of the doctrines of John Hunter in America as was Abernethy in London."

Experimental Pylorectomy in 1779.

Of especial interest, however, is the work of an early experimental surgeon, described by Merrem as "a certain famous professor, highly respected and renowned among the medical profession in Philadelphia." Just who was this famous Philadelphian is not stated, but after an exhaustive study of the records and by careful comparison of dates and other facts bearing upon the circumstances related, there can be little doubt, I think, that the author of these experiments was none other than John Jones. He was a native of Philadelphia, who had returned there to spend the closing years of his life, but who was, as we have seen, the first professor of surgery in King's College, New York, where he had served with distinction for many years. In Merrem's Thesis, published in Giessen in 1810, the following interesting report appears: "A certain famous professor, highly respected and renowned among the medical profession of Philadelphia . . . was greatly concerned by the premature death of Dr. Middleton, whose death was caused by the hardening and narrowing of the lower orifice of the stomach. He therefore concentrated his attention on the most effective remedy for this very dangerous malady. The terrible suffering of his beloved friend could not be removed nor even relieved, although the most approved remedies of the time were used. Nothing, therefore, was left other than to remove the cause of the disease—that is, to extirpate the pylorus. This operation seemed involved in such serious danger that at the time his friend would not perform it. Two years before he had had experiments made on several dogs, some of them in perfect health, one a puppy, but they all terminated fatally. . . ." Then follows a more detailed account of the experiments.

The Dr. Middleton here referred to was none other than Peter Middleton, a member of the first medical faculty of King's College, and as such had been closely associated with John Jones. Search of the records shows that Middleton had suffered for some time from obstruction of the pylorus, of which affection he finally died in 1781.

Since it is definitely stated that these operations upon dogs had been performed two years previously, in 1779, it will be observed that this work of John Jones antedates by almost a century the famous experiments of Gussenbauer and Von Winiwarter in Billroth's clinic, first performed in 1876, to which priority has heretofore been given. It should be stated, in justice to them, that reference to Merrem's paper is made in their report. It is interesting to speculate as to just how far John Jones, in his pioneer experiments on pylorectomy in dogs, was influenced by the teaching of John Hunter, whose disciple he was.

Jones first began his medical studies under Dr. Thomas Cadwallader of Philadelphia. He then went to London and attended courses with William Hunter, McKenzie, and others, and at St. Bartholomew's under Pott. Afterwards he went to France, where he obtained his M.D. at the University of Rheims. Later he visited Paris, Leyden, and finally Edinburgh. He later revisited London and renewed his friendship with Mr. Pott and Dr. Hunter, and was in attendance also upon the lectures of John Hunter. His influence throughout was largely exerted toward the simplification of methods in surgery, undoubtedly the result of the teaching of Pott and Hunter. This was especially evident in his work on wounds and fractures, a text-book widely used for a time. John Jones was one of the outstanding figures in the early history of surgery in America, and the impress that he left upon it was deep and lasting.

Vascular Surgery.

Surgery of the vascular system, so intimately associated with the name of Hunter, early reached a high state of development in the colonies. It was, of course, largely limited to ligation of the great arteries. Among the early American surgeons noted for their successful work in this respect may be mentioned Valentine Mott, Wright Post, Rogers, Twichell, Gibson, and many others. Indeed the Hunterian influence in this branch of surgery, thus early so pronounced, may be truly said to have continued unabated down to the present day through the original and important contributions of the late Prof. Halsted and Rudolph Matas of New Orleans. Lack of time prevents more than a brief reference to the first two named.

Wright Post, after preliminary study in New York, went to London in 1784. Here he spent two and a half years. He also made several subsequent visits. There he attended the well-known clinics, Hunter's among the number. Immediately upon his return to New York he began a course of anatomical and surgical lectures. Later he became professor of surgery in Columbia College. He acquired great reputation as an operative surgeon. His chief title to fame perhaps rests upon the remarkable success achieved by him in the ligation of large arteries. He first, in America, ligated, and that successfully, the femoral artery after the manner of Hunter. He was the first surgeon to tie the common carotid with success; also the subclavian artery in its third portion. He was one of the great exemplars in America of the principles laid down by John Hunter in the surgery of the arterial system.

Valentine Mott took his medical degree in Columbia University in 1803. He then went to London where he became a pupil of Sir Astley Cooper, and through him, and like him, undoubtedly influenced by Hunter, he later achieved great fame from his extensive work in vascular surgery. He also spent some time in Edinburgh under John Bell. On his return to New York, true to his teachings, he began a course of private lectures on surgery which led to his appointment as lecturer and, later, professor of surgery in Columbia. He continued lecturing for 56 years—an extraordinary record. His lectures were noted for their simplicity and the systematic way in which he dealt with his subjects. Like Hunter's, they dealt largely with fact and little with theory. Perhaps more than any other American surgical teacher he impressed upon his students the great importance of their work in anatomy and continued dissection. As an operating surgeon, he showed great skill. The particular operation which made his reputation upon both sides of the Atlantic was the ligation, in May, 1818, of the innominate artery. Besides the innominate, says Billings, "Mott tied the subclavian eight times, the carotids 53 times, the common iliac once, the external iliac six times, the internal twice, the femoral 57 times, the popliteal 10 times; in all 139 ligations of the great vessels for aneurysm." A most extraordinary record, especially when one considers that the bulk of his work was done in the pre-anæsthetic era, and all of it in the pre-Listerian period. Mott's accomplishments were not alone in the line of vascular surgery. He did excellent work in bone and joint surgery, lithotomy and plastic work, especially operations for harelip. His is one of the outstanding names in American surgery.

McDowell's Ovariotomy.

This list of early American exponents of Hunter's teachings would not be complete without at least a passing reference to one whose title to fame rests, perhaps, upon a single contribution.

Ephraim McDowell had a very rudimentary education under Dr. Humphries, a graduate of Edinburgh. Through his influence McDowell went abroad and studied for two years in that University, where he came under the influence of John Bell, who made a deep and lasting impression upon him. He spent a short time in London, attending the chief hospitals and clinics. He then returned to his native country, and moving West, became one of the pioneer surgeons in that as yet undeveloped region. In 1809 he performed the celebrated operation for the removal of an ovarian tumour, which constitutes his chief title to fame. He later reported a series of five similar cases with four recoveries. McDowell had difficulty in getting his first report published, as those to whom he submitted it refused to believe that an unknown, backwoods doctor could accomplish anything like that. It was finally accepted by the *Eclectic Repertory* of Philadelphia and appeared in that journal in 1817, but attracted very little attention—so little, in fact, that Nathan Smith knew nothing about it in 1821, when he reported his first case of ovariotomy as something new. It was not until the account sent by McDowell to his old preceptor John Bell of Edinburgh, and which,

because of his death, did not reach him, but fell into the hands of Mr. Lizars, an Edinburgh surgeon, and was published by him in the *Edinburgh Medical and Surgical Journal* in 1824, that McDowell received the recognition and credit due him. He was an excellent anatomist, and gave courses in practical anatomy. He was also a great lithotomist. He had this peculiarity—he always preferred to operate on Sunday morning, saying that he liked to have the benefit of the prayers of the church.

The Hunterian Tradition.

J. J. Mumford, in his interesting work entitled, "Surgical Memoirs," in calling attention to the fact "that the best early American surgery grew out of English surgery, with John Hunter as its prophet," very aptly and justly divides American surgery into three eras, the first of which he calls the "Hunterian Era." The honoured names of those first surgeons, who drew their inspiration from John Hunter and whose accomplishments brought credit to their native country, are, as we have seen, William Shippen, jun., John Jones, Philip Syng Physick, Caspar Wistar, Wright Post, Valentine Mott, Ephraim McDowell, John Warren, John Collins Warren, and Nathan Smith. That every one of these men—those who came directly under the personal influence of John Hunter as well as those who obtained their training secondhand, as it were, from his pupils—bear his marked impress and show it most emphatically in the open-mindedness, the honesty of purpose, and the zeal after truth which characterised their work, I have attempted to make clear. That this influence has been further broadcast throughout the United States through the teachings of their pupils, and is active, even down to the present day, is apparent to the most casual observer.

I have touched upon but a few of the more important results of John Hunter's teaching and influence upon early American surgery. That he did, through his students, wield a commanding influence over medicine in general, the founding of medical schools and hospitals, and the collection of anatomical and pathological specimens is a matter of history. But his greatest contribution, perhaps, was the emphasis which he placed in his teaching upon the correct use of one's faculties, careful observation, the collection of data, inductive reasoning, experiment, and the disregard of tradition. This is the legacy that he has left to enrich the entire surgical world. Since his time various other influences have been felt, have left their impress, and been succeeded in turn by others; the French, then the Austrian led by Billroth; and, lastly, the German and the Swiss led by Kocher. But none has been more profound and lasting than that inaugurated by John Hunter.

Medical thought and action may be influenced in many ways and through various channels. The magnetism of some compelling personality in medicine or surgery may have such a dynamic effect upon his associates and contemporaries as to affect profoundly their entire professional outlook. Such an influence, not apt to be more than local, possibly national, is not lasting, nor is it readily transmitted, and it begins to wane as soon as the personality passes off the stage.

Another great teacher arises; he may or may not have a personality, but he has something else. He it is who discovers underlying principles and enunciates them for all time. Whether or not such an one lives or dies, his influence continues, recorded and perpetuated in the lives and work and thought of his pupils, and those who come after. Such a genius was John Hunter. The principles that he, by dint of ceaseless labour, close observation, sound reasoning and carefully conducted experiment, worked out and finally promulgated are just as true and just as binding to-day as when first announced by him. This is why he has remained such a power in the world of scientific surgery, and why, after the lapse of over a century, we do well to review again what he has wrought, to appreciate anew the value of his contributions to the surgery to-day, and to give honour to whom honour is due.

Note.—In the preparation of this address I wish to make due acknowledgment of invaluable assistance received from many sources. Besides those authors named in the text, free use has been made of the work of numerous other medical writers and historians, chiefly that of Toner, Williams, Thatcher, Packard, and Garrison, and addresses and other material from various sources both published and unpublished.

THE BLIND IN SCOTLAND.

THE Third Report of the Scottish Advisory Committee on the Welfare of the Blind states that there are 6639 blind persons in Scotland on the Central Register kept by the Board of Health, which is an increase of 585 since the issue of the last report in 1924. The Committee explains that this increase is probably mainly due to the greater interest taken in the case of the blind since Government grants were provided for voluntary agencies and responsibility was placed on local authorities. Of the total number of registered blind persons, 359 are under 16 years of age, and 2835 are between the ages of 50 and 70. This latter group are eligible in respect of age for the blind pension, and the Committee estimates that 2000 are now in receipt of the pension. There has been a gratifying decrease in the number of blind children both under 5 years of age and between the ages of 5 and 16. Employment is found in institutions for 925 blind persons, an increase of nearly 200 in the past two years. 4164, or approximately 62·7 of the total number of registered blind in Scotland are unemployable. The sum of £83,902 has been paid by the State in the past seven years towards the maintenance of the services provided by voluntary agencies for the welfare of the blind in Scotland.

The report makes recommendations on various subjects, including technical training and marriage. The Committee states that it is not satisfied that a total of 288 (or 43·4 per 1000) blind persons either certified or certifiable as mental defectives by any means represents the true position. It is also of opinion that "mentally defective blind children, unless of low grade, could be better dealt with and educated in schools for the blind among pupils of a higher grade of intelligence than themselves than in certified institutions for mental defectives."

Copies of the report may be had from H.M. Stationery Office, 120, George-street, Edinburgh. (Price 7*d.*, post free.)

A PROFESSOR'S FAIRY TALES.

Her Majesty the Queen has accepted the first copy of a limited Presentation Edition of "The Scarecrow and other Fairy Tales," by Dr. Leonard Hill, F.R.S., numbered and signed by the author. A copy was also accepted by the Queen of the Belgians during her recent visit to the National Institute for Medical Research, when, at Her Majesty's request, it was specially inscribed by the author "To Queen Elizabeth from Leonard Hill." The fairy tales were printed by the author at the request of his friends on the occasion of his sixtieth birthday, and a limited edition will be published shortly by the Actinic Press, Ltd.

SPECIAL LECTURES AT MEDICAL SCHOOLS.

IT has been brought to the notice of the Fellowship of Medicine that certain provincial medical schools and societies wish to supplement their ordinary programmes by inviting teachers connected with the Fellowship to give special lectures. The Fellowship is prepared to accede to any such request, and in order that definite arrangements can be made would be glad to hear from those provincial schools which are desirous of procuring such lecturers.

Physique of Policemen.—With reference to a paragraph under this heading which appeared in THE LANCET of Feb. 12th, the chief constable of Leeds informs us that the actual daily percentage of sickness for the whole of the Leeds City Police Force during the year 1925 was 3·27. The average number of days absence in respect of each man off duty owing to sickness during this period was 19.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 12TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 479 (last week 547); scarlet fever, 1281; diphtheria, 900; enteric fever, 22; pneumonia, 3192 (last week 3198); puerperal fever, 51; puerperal pyrexia, 136; cerebro-spinal fever, 17; acute poliomyelitis, 10; encephalitis lethargica, 33; dysentery, 4; and ophthalmia neonatorum, 126. No case of cholera, plague, typhus fever, or polio-encephalitis was notified during the week.

No further case of small-pox was notified from Portsmouth C.B. or from Essex, whilst two more were notified from Stockport C.B. The remaining cases were distributed, as last week, among the following counties: Derbyshire, 23; Durham, 289; Lancashire, 3; Northumberland, 11; Nottinghamshire, 6; Yorkshire, 145.

Deaths.—A death from small-pox was reported from South Shields. In the aggregate of great towns, including London, there was 1 (1) death from enteric fever, 47 (0) from measles, 6 (1) from scarlet fever, 129 (34) from whooping-cough, 46 (16) from diphtheria, 28 (3) from diarrhœa and enteritis under 2 years, and 759 (159) from influenza. The figures in parentheses are those for London itself. The influenzal deaths for the last six weeks have thus been 173, 326, 470, 725, 818, 759, while 990 is the figure notified for the week ended Feb. 19th, the figure for London being 128.